

SEQUENCE LISTING

<110> Shutter, John
Ulias, Laarni

<120> ATP-Binding Cassette Transporter-Like Molecules and
Uses Thereof

<130> 00-658-A

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<150> 60/253,520

<151> 2000-11-28

<160> 24

<170> PatentIn Ver. 2.0

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Leu Glu His His Glu Cys His Phe Pro Asn Lys Pro Leu Pro Ser Ala
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Cys Phe Gln His Pro Thr Pro Gly Glu Lys Pro Gly Val Leu Ser Asn
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770

775

780

2400

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 Glu Leu Leu Lys Tyr Arg Glu Gly Arg Thr Leu Ile Leu Ser Thr
 980 985 990

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 His His Leu Asp Glu Ala Glu Leu Leu Gly Asp Arg Val Ala Met Val
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His Pro Leu Asn Leu Thr Lys Glu Gln Leu Ser Glu Ala Thr Leu Ile			
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Tyr Trp Leu Gly Asn Phe Leu Trp Asp Met Cys Asn Tyr Leu Val Ala			
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cag gcc atg gca gat gcc ttt gag cg ^c tta gga gac aag c ^a a ttt cag Gln Ala Met Ala Asp Ala Phe Glu Arg Leu Gly Asp Lys Gln Phe Gln 1730	1735	1740	5232
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cgt ggg cag agg aac cca gct gtg gat cg ^c ctg tgc tta ggg atc ccc Arg Gly Gln Arg Asn Pro Ala Val Asp Arg Leu Cys Leu Gly Ile Pro 1825	1830	1835	5520
cct ggg gag tgt ttc ggg ctg ctg ggt gtc aac ggg gca ggg aag aca Pro Gly Glu Cys Phe Gly Leu Leu Gly Val Asn Gly Ala Gly Lys Thr 1845	1850	1855	5568
tcc acc ttc cgc atg gtg aca ggg gac aca ctg ccc agc agt ggt gaa Ser Thr Phe Arg Met Val Thr Gly Asp Thr Leu Pro Ser Ser Gly Glu 1860	1865	1870	5616
gca gta ctg gca ggc cac aac gtg gcc cag gag cg ^g tct gcc gca cac Ala Val Leu Ala Gly His Asn Val Ala Gln Glu Arg Ser Ala Ala His 1875	1880	1885	5664
cg ^c agc atg ggc tac tgt ccc cag tct gat gcc atc ttc gac ctg ctg Arg Ser Met Gly Tyr Cys Pro Gln Ser Asp Ala Ile Phe Asp Leu Leu 1890	1895	1900	5712
acc ggc cgg gaa cat ctg gaa ctg ttt gct cg ^c ctg cg ^c ggg gtg ccc Thr Gly Arg Glu His Leu Glu Leu Phe Ala Arg Leu Arg Gly Val Pro 1905	1910	1915	5760
		1920	

gag gcc caa gtt gcc cag act gcg ctc tct ggc ctg gtg cgc ctg ggc Glu Ala Gln Val Ala Gln Thr Ala Leu Ser Gly Leu Val Arg Leu Gly 1925 1930 1935	5808
ctt cct agc tat gca gac cga ccc gcg ggt acc tac agc gga ggc aac Leu Pro Ser Tyr Ala Asp Arg Pro Ala Gly Thr Tyr Ser Gly Gly Asn 1940 1945 1950	5856
aaa cggtt aag ctg gcg aca gcc tta gct ctg gtt ggt gac cca gct gtg Lys Arg Lys Leu Ala Thr Ala Leu Ala Leu Val Gly Asp Pro Ala Val 1955 1960 1965	5904
gtc ttt ctg gac gag ccc acc aca ggc atg gac cca agt gcg cggtt Val Phe Leu Asp Glu Pro Thr Thr Gly Met Asp Pro Ser Ala Arg Arg 1970 1975 1980	5952
ttt ctt tgg aac agc ttg ctg tcc gtg cgc gag ggc cgc tcc gta Phe Leu Trp Asn Ser Leu Leu Ser Val Val Arg Glu Gly Arg Ser Val 1985 1990 1995 2000	6000
gtg ctc acg tcg cac agc atg gag gag tgc gaa gcg ctc tgc acg cgc Val Leu Thr Ser His Ser Met Glu Glu Ala Leu Cys Thr Arg 2005 2010 2015	6048
ctg gcc atc atg gtg aac ggg cgg ttc cgc tgt ctg gga agc tct cag Leu Ala Ile Met Val Asn Gly Arg Phe Arg Cys Leu Gly Ser Ser Gln 2020 2025 2030	6096
cat ctc aaa ggc agg ttc ggg gct ggc cac aca ctg act cta agg gtc His Leu Lys Gly Arg Phe Gly Ala Gly His Thr Leu Thr Leu Arg Val 2035 2040 2045	6144
cca ccg gac cag cct gag ccg gcg ata gcc ttc atc agg atc aca ttc Pro Pro Asp Gln Pro Glu Pro Ala Ile Ala Phe Ile Arg Ile Thr Phe 2050 2055 2060	6192
cct ggg gct gaa ctc cgg gag gtg cac ggc agc cgt ctg cgc ttc caa Pro Gly Ala Glu Leu Arg Glu Val His Gly Ser Arg Leu Arg Phe Gln 2065 2070 2075 2080	6240
ctg cca ccg ggg ggc aga tgc acc ctg aca cga gtg ttc agg gag ctg Leu Pro Pro Gly Gly Arg Cys Thr Leu Thr Arg Val Phe Arg Glu Leu 2085 2090 2095	6288
gct gcc cag ggc agg gcc cac ggt gtg gag gac ttc tct gtg agc cag Ala Ala Gln Gly Arg Ala His Gly Val Glu Asp Phe Ser Val Ser Gln 2100 2105 2110	6336
acc act ctg gag gag gtg ttc cta tat ttc tcc aaa gac caa ggg gaa Thr Thr Leu Glu Glu Val Phe Leu Tyr Phe Ser Lys Asp Gln Gly Glu 2115 2120 2125	6384
gag gaa gag agc agt cgg cag gag gct gaa gaa gag gag gtt tcc aaa Glu Glu Glu Ser Ser Arg Gln Glu Ala Glu Glu Glu Val Ser Lys 2130 2135 2140	6432

cct ggc cg^g cag cat ccc aaa cgt gtc agc cga ttc ctg gaa gac ccc 6480
Pro Gly Arg Gln His Pro Lys Arg Val Ser Arg Phe Leu Glu Asp Pro
2145 2150 2155 2160

agc tct gtg gag acc atg atc tga gcatgcctgc cttggactg agtggcaaag 6534
Ser Ser Val Glu Thr Met Ile
2165

ctcagacaga ggatctctgt accatacgct ggctcccaga aagccttggg ctctggggga 6594
aataaaaaga aactagaatg agaaaaaaaaaaaaaaa 6633

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<213> Mus musculus

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Tyr Arg Arg Arg Gln Pro Ile Gln Leu Leu Val Glu Leu Leu Trp Pro
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Leu Phe Leu Phe Phe Ile Leu Val Ala Val Arg His Ser His Pro Pro
35 40 45

Leu Glu His His Glu Cys His Phe Pro Asn Lys Pro Leu Pro Ser Ala
50 55 60

Gly Thr Val Pro Trp Leu Gln Gly Leu Val Cys Asn Val Asn Asn Ser
65 70 75 80

Cys Phe Gln His Pro Thr Pro Gly Glu Lys Pro Gly Val Leu Ser Asn
85 90 95

Phe Lys Asp Ser Leu Ile Ser Arg Leu Leu Ala Asp Thr Arg Thr Val
100 105 110

Leu Gly Gly His Ser Ile Gln Asp Met Leu Asp Ala Leu Gly Lys Leu
115 120 125

Ile Pro Val Leu Arg Ala Val Gly Gly Ala Arg Pro Gln Glu Ser
130 135 140

Asp Gln Pro Thr Ser Gln Gly Ser Val Thr Lys Leu Leu Glu Lys Ile
145 150 155 160

Leu Gln Arg Ala Ser Leu Asp Pro Val Leu Gly Gln Ala Gln Asp Ser
165 170 175

Met Arg Lys Phe Ser Asp Ala Ile Arg Asp Leu Ala Gln Glu Leu Leu
180 185 190

Thr Leu Pro Ser Leu Met Glu Leu Arg Ala Leu Leu Arg Arg Pro Arg
195 200 205

Gly Ser Ala Gly Ser Leu Glu Leu Val Ser Glu Ala Leu Cys Ser Thr
 210 215 220
 Lys Gly Pro Ser Ser Pro Gly Gly Leu Ser Leu Asn Trp Tyr Glu Ala
 225 230 235 240
 Asn Gln Leu Asn Glu Phe Met Gly Pro Glu Val Ala Pro Ala Leu Pro
 245 250 255
 Asp Asn Ser Leu Ser Pro Ala Cys Ser Glu Phe Val Gly Thr Leu Asp
 260 265 270
 Asp His Pro Val Ser Arg Leu Leu Trp Arg Arg Leu Lys Pro Leu Ile
 275 280 285
 Leu Gly Lys Ile Leu Phe Ala Pro Asp Thr Asn Phe Thr Arg Lys Leu
 290 295 300
 Met Ala Gln Val Asn Gln Thr Phe Glu Glu Leu Ala Leu Leu Arg Asp
 305 310 315 320
 Leu His Glu Leu Trp Gly Val Leu Gly Pro Gln Ile Phe Asn Phe Met
 325 330 335
 Asn Asp Ser Thr Asn Val Ala Met Leu Gln Arg Leu Leu Asp Val Gly
 340 345 350
 Gly Thr Gly Gln Arg Gln Gln Thr Pro Arg Ala Gln Lys Lys Leu Glu
 355 360 365
 Ala Ile Lys Asp Phe Leu Asp Pro Ser Arg Gly Gly Tyr Ser Trp Arg
 370 375 380
 Glu Ala His Ala Asp Met Gly Arg Leu Ala Gly Ile Leu Gly Gln Met
 385 390 395 400
 Met Glu Cys Val Ser Leu Asp Lys Leu Glu Ala Val Pro Ser Glu Glu
 405 410 415
 Ala Leu Val Ser Arg Ala Leu Glu Leu Leu Gly Glu Arg Arg Leu Trp
 420 425 430
 Ala Gly Ile Val Phe Leu Ser Pro Glu His Pro Leu Asp Pro Ser Glu
 435 440 445
 Leu Ser Ser Pro Ala Leu Ser Pro Gly His Leu Arg Phe Lys Ile Arg
 450 455 460
 Met Asp Ile Asp Asp Val Thr Arg Thr Asn Lys Ile Arg Asp Lys Phe
 465 470 475 480
 Trp Asp Pro Gly Pro Ser Ala Asp Pro Phe Met Asp Leu Arg Tyr Val
 485 490 495
 Trp Gly Gly Phe Val Tyr Leu Gln Asp Leu Leu Glu Gln Ala Ala Val
 500 505 510

Arg Val Leu Gly Gly Asn Ser Arg Thr Gly Leu Tyr Leu Gln Gln
 515 520 525
 Met Pro His Pro Cys Tyr Val Asp Asp Val Phe Leu Arg Val Leu Ser
 530 535 540
 Arg Ser Leu Pro Leu Phe Leu Thr Leu Ala Trp Ile Tyr Ser Val Ala
 545 550 555 560
 Leu Thr Val Lys Ala Val Val Arg Glu Lys Glu Thr Arg Leu Arg Glu
 565 570 575
 Thr Met Arg Ala Met Gly Leu Ser Arg Ala Val Leu Trp Leu Gly Trp
 580 585 590
 Phe Leu Ser Cys Leu Gly Pro Phe Leu Val Ser Ala Ala Leu Leu Val
 595 600 605
 Leu Val Leu Lys Leu Gly Asn Ile Leu Pro Tyr Ser His Pro Val Val
 610 615 620
 Ile Phe Leu Phe Leu Ala Ala Phe Ala Val Ala Thr Val Ala Gln Ser
 625 630 635 640
 Phe Leu Leu Ser Ala Phe Phe Ser Arg Ala Asn Leu Ala Ala Cys
 645 650 655
 Gly Gly Leu Ala Tyr Phe Ala Leu Tyr Leu Pro Tyr Val Leu Cys Val
 660 665 670
 Ala Trp Arg Glu Arg Leu His Leu Gly Gly Leu Leu Ala Ala Ser Leu
 675 680 685
 Leu Ser Pro Val Ala Phe Gly Phe Gly Cys Glu Ser Leu Ala Leu Leu
 690 695 700
 Glu Glu Gln Gly Asp Gly Ala Gln Trp His Asn Leu Gly Thr Gly Pro
 705 710 715 720
 Ala Glu Asp Val Phe Ser Leu Ala Gln Val Ser Ala Phe Leu Leu
 725 730 735
 Asp Ala Val Ile Tyr Gly Leu Ala Leu Trp Tyr Leu Glu Ala Val Cys
 740 745 750
 Pro Gly Gln Tyr Gly Ile Pro Glu Pro Trp Asn Phe Pro Phe Arg Arg
 755 760 765
 Ser Tyr Trp Cys Gly Pro Gly Pro Pro Lys Ser Ser Val Leu Ala Pro
 770 775 780
 Ala Pro Gln Asp Pro Lys Val Leu Val Glu Glu Pro Pro Leu Gly Leu
 785 790 795 800
 Val Pro Gly Val Ser Ile Arg Gly Leu Lys Lys His Phe Arg Gly Cys
 805 810 815

Pro Gln Pro Ala Leu Gln Gly Leu Asn Leu Asp Phe Tyr Glu Gly His
 820 825 830
 Ile Thr Ala Phe Leu Gly His Asn Gly Ala Gly Lys Thr Thr Thr Leu
 835 840 845
 Ser Ile Leu Ser Gly Leu Phe Pro Pro Ser Ser Gly Ser Ala Ser Ile
 850 855 860
 Leu Gly His Asp Val Gln Thr Asn Met Ala Ala Ile Arg Pro His Leu
 865 870 875 880
 Gly Ile Cys Pro Gln Tyr Asn Val Leu Phe Asp Met Leu Thr Val Glu
 885 890 895
 Glu His Val Trp Phe Tyr Gly Arg Leu Lys Gly Val Ser Ala Ala Ala
 900 905 910
 Met Gly Pro Glu Arg Glu Arg Leu Ile Arg Asp Val Gly Leu Thr Leu
 915 920 925
 Lys Arg Asp Thr Gln Thr Arg His Leu Ser Gly Gly Met Gln Arg Lys
 930 935 940
 Leu Ser Val Ala Ile Ala Phe Val Gly Gly Ser Arg Val Val Ile Met
 945 950 955 960
 Asp Glu Pro Thr Ala Gly Val Asp Pro Ala Ser Arg Arg Gly Ile Trp
 965 970 975
 Glu Leu Leu Leu Lys Tyr Arg Glu Gly Arg Thr Leu Ile Leu Ser Thr
 980 985 990
 His His Leu Asp Glu Ala Glu Leu Leu Gly Asp Arg Val Ala Met Val
 995 1000 1005
 Ala Gly Gly Ser Leu Cys Cys Cys Gly Ser Pro Leu Phe Leu Arg Arg
 1010 1015 1020
 His Leu Gly Cys Gly Tyr Tyr Leu Thr Leu Val Lys Ser Ser Gln Ser
 1025 1030 1035 1040
 Leu Val Thr His Asp Ala Lys Gly Asp Ser Glu Asp Pro Arg Arg Glu
 1045 1050 1055
 Lys Lys Ser Asp Gly Asn Gly Arg Thr Ser Asp Thr Ala Phe Thr Arg
 1060 1065 1070
 Gly Thr Ser Asp Lys Ser Asn Gln Ala Pro Ala Pro Gly Ala Val Pro
 1075 1080 1085
 Ile Thr Pro Ser Thr Ala Arg Ile Leu Glu Leu Val Gln Gln His Val
 1090 1095 1100
 Pro Gly Ala Gln Leu Val Glu Asp Leu Pro His Glu Leu Leu Leu Val
 1105 1110 1115 1120

Leu Pro Tyr Ala Gly Ala Leu Asp Gly Ser Phe Ala Met Val Phe Gln
1125 1130 1135

Glu Leu Asp Gln Gln Leu Glu Leu Leu Gly Leu Thr Gly Tyr Gly Ile
1140 1145 1150

Ser Asp Thr Asn Leu Glu Glu Ile Phe Leu Lys Val Val Glu Asp Ala
1155 1160 1165

His Arg Glu Gly Gly Asp Ser Arg Pro Gln Leu His Leu Arg Thr Cys
1170 1175 1180

Thr Pro Gln Pro Pro Thr Gly Pro Glu Ala Ser Val Leu Glu Asn Gly
1185 1190 1195 1200

Glu Leu Ala Lys Leu Val Leu Asp Pro Gln Ala Pro Gln Gly Leu Ala
1205 1210 1215

Pro Asn Ala Ala Gln Val Gln Gly Trp Thr Leu Thr Cys Gln Gln Leu
1220 1225 1230

Arg Ala Leu Leu His Lys Arg Phe Leu Leu Ala Arg Arg Ser Arg Arg
1235 1240 1245

Gly Leu Phe Ala Gln Val Val Leu Pro Ala Leu Phe Val Gly Leu Ala
1250 1255 1260

Leu Phe Phe Ser Leu Ile Val Pro Pro Phe Gly Gln Tyr Pro Pro Leu
1265 1270 1275 1280

Gln Leu Ser Pro Ala Met Tyr Gly Pro Gln Val Ser Phe Phe Ser Glu
1285 1290 1295

Asp Ala Pro Gly Asp Pro Asn Arg Met Lys Leu Leu Glu Ala Leu Leu
1300 1305 1310

Gly Glu Ala Gly Leu Gln Glu Pro Ser Met Gln Asp Lys Asp Ala Arg
1315 1320 1325

Gly Ser Glu Cys Thr His Ser Leu Ala Cys Tyr Phe Thr Val Pro Glu
1330 1335 1340

Val Pro Pro Asp Val Ala Ser Ile Leu Ala Ser Gly Asn Trp Thr Pro
1345 1350 1355 1360

Glu Ser Pro Ser Pro Ala Cys Gln Cys Ser Gln Pro Gly Ala Arg Arg
1365 1370 1375

Leu Leu Pro Asp Cys Pro Ala Gly Ala Gly Pro Pro Pro Gln
1380 1385 1390

Ala Val Ala Gly Leu Gly Glu Val Val Gln Asn Leu Thr Gly Arg Asn
1395 1400 1405

Val Ser Asp Phe Leu Val Lys Thr Tyr Pro Ser Leu Val Arg Arg Gly
1410 1415 1420

Leu Lys Thr Lys Lys Trp Val Asp Glu Val Arg Tyr Gly Gly Phe Ser
 1425 1430 1435 1440

 Leu Gly Gly Arg Asp Pro Asp Leu Pro Thr Gly His Glu Val Val Arg
 1445 1450 1455

 Thr Leu Ala Glu Ile Arg Ala Leu Leu Ser Pro Gln Pro Gly Asn Ala
 1460 1465 1470

 Leu Asp Arg Ile Leu Asn Asn Leu Thr Gln Trp Ala Leu Gly Leu Asp
 1475 1480 1485

 Ala Arg Asn Ser Leu Lys Ile Trp Phe Asn Asn Lys Gly Trp His Ala
 1490 1495 1500

 Met Val Ala Phe Val Asn Arg Ala Asn Asn Gly Leu Leu His Ala Leu
 1505 1510 1515 1520

 Leu Pro Ser Gly Pro Val Arg His Ala His Ser Ile Thr Thr Leu Asn
 1525 1530 1535

 His Pro Leu Asn Leu Thr Lys Glu Gln Leu Ser Glu Ala Thr Leu Ile
 1540 1545 1550

 Ala Ser Ser Val Asp Val Leu Val Ser Ile Cys Val Val Phe Ala Met
 1555 1560 1565

 Ser Phe Val Pro Ala Ser Phe Thr Leu Val Leu Ile Glu Glu Arg Ile
 1570 1575 1580

 Thr Arg Ala Lys His Leu Gln Leu Val Ser Gly Leu Pro Gln Thr Leu
 1585 1590 1595 1600

 Tyr Trp Leu Gly Asn Phe Leu Trp Asp Met Cys Asn Tyr Leu Val Ala
 1605 1610 1615

 Val Cys Ile Val Val Phe Ile Phe Leu Ala Phe Gln Gln Arg Ala Tyr
 1620 1625 1630

 Val Ala Pro Glu Asn Leu Pro Ala Leu Leu Leu Leu Leu Tyr
 1635 1640 1645

 Gly Trp Ser Ile Thr Pro Leu Met Tyr Pro Ala Ser Phe Phe Ser
 1650 1655 1660

 Val Pro Ser Thr Ala Tyr Val Val Leu Thr Cys Ile Asn Leu Phe Ile
 1665 1670 1675 1680

 Gly Ile Asn Ser Ser Met Ala Thr Phe Val Leu Glu Leu Leu Ser Asp
 1685 1690 1695

 Gln Asn Leu Gln Glu Val Ser Arg Ile Leu Lys Gln Val Phe Leu Ile
 1700 1705 1710

 Phe Pro His Phe Cys Leu Gly Arg Gly Leu Ile Asp Met Val Arg Asn
 1715 1720 1725

Gln Ala Met Ala Asp Ala Phe Glu Arg Leu Gly Asp Lys Gln Phe Gln
 1730 1735 1740
 Ser Pro Leu Arg Trp Asp Ile Ile Gly Lys Asn Leu Leu Ala Met Met
 1745 1750 1755 1760
 Ala Gln Gly Pro Leu Phe Leu Leu Ile Thr Leu Leu Leu Gln His Arg
 1765 1770 1775
 Asn Arg Leu Leu Pro Gln Ser Lys Pro Arg Leu Leu Pro Pro Leu Gly
 1780 1785 1790
 Glu Glu Asp Glu Asp Val Ala Gln Glu Arg Glu Arg Val Thr Lys Gly
 1795 1800 1805
 Ala Thr Gln Gly Asp Val Leu Val Leu Arg Asp Leu Thr Lys Val Tyr
 1810 1815 1820
 Arg Gly Gln Arg Asn Pro Ala Val Asp Arg Leu Cys Leu Gly Ile Pro
 1825 1830 1835 1840
 Pro Gly Glu Cys Phe Gly Leu Leu Gly Val Asn Gly Ala Gly Lys Thr
 1845 1850 1855
 Ser Thr Phe Arg Met Val Thr Gly Asp Thr Leu Pro Ser Ser Gly Glu
 1860 1865 1870
 Ala Val Leu Ala Gly His Asn Val Ala Gln Glu Arg Ser Ala Ala His
 1875 1880 1885
 Arg Ser Met Gly Tyr Cys Pro Gln Ser Asp Ala Ile Phe Asp Leu Leu
 1890 1895 1900
 Thr Gly Arg Glu His Leu Glu Leu Phe Ala Arg Leu Arg Gly Val Pro
 1905 1910 1915 1920
 Glu Ala Gln Val Ala Gln Thr Ala Leu Ser Gly Leu Val Arg Leu Gly
 1925 1930 1935
 Leu Pro Ser Tyr Ala Asp Arg Pro Ala Gly Thr Tyr Ser Gly Gly Asn
 1940 1945 1950
 Lys Arg Lys Leu Ala Thr Ala Leu Ala Leu Val Gly Asp Pro Ala Val
 1955 1960 1965
 Val Phe Leu Asp Glu Pro Thr Thr Gly Met Asp Pro Ser Ala Arg Arg
 1970 1975 1980
 Phe Leu Trp Asn Ser Leu Leu Ser Val Val Arg Glu Gly Arg Ser Val
 1985 1990 1995 2000
 Val Leu Thr Ser His Ser Met Glu Glu Cys Glu Ala Leu Cys Thr Arg
 2005 2010 2015
 Leu Ala Ile Met Val Asn Gly Arg Phe Arg Cys Leu Gly Ser Ser Gln
 2020 2025 2030

His Leu Lys Gly Arg Phe Gly Ala Gly His Thr Leu Thr Leu Arg Val
 2035 2040 2045
 Pro Pro Asp Gln Pro Glu Pro Ala Ile Ala Phe Ile Arg Ile Thr Phe
 2050 2055 2060
 Pro Gly Ala Glu Leu Arg Glu Val His Gly Ser Arg Leu Arg Phe Gln
 2065 2070 2075 2080
 Leu Pro Pro Gly Gly Arg Cys Thr Leu Thr Arg Val Phe Arg Glu Leu
 2085 2090 2095
 Ala Ala Gln Gly Arg Ala His Gly Val Glu Asp Phe Ser Val Ser Gln
 2100 2105 2110
 Thr Thr Leu Glu Glu Val Phe Leu Tyr Phe Ser Lys Asp Gln Gly Glu
 2115 2120 2125
 Glu Glu Glu Ser Ser Arg Gln Glu Ala Glu Glu Glu Val Ser Lys
 2130 2135 2140
 Pro Gly Arg Gln His Pro Lys Arg Val Ser Arg Phe Leu Glu Asp Pro
 2145 2150 2155 2160
 Ser Ser Val Glu Thr Met Ile
 2165

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 <212> PRT
 <213> Mus musculus

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 Pro Pro Leu Glu His His Glu Cys His Phe Pro Asn Lys Pro Leu Pro
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 Ser Ala Gly Thr Val Pro Trp Leu Gln Gly Leu Val Cys Asn Val Asn
 20 25 30
 Asn Ser Cys Phe Gln His Pro Thr Pro Gly Glu Lys Pro Gly Val Leu
 35 40 45
 Ser Asn Phe Lys Asp Ser Leu Ile Ser Arg Leu Leu Ala Asp Thr Arg
 50 55 60
 Thr Val Leu Gly Gly His Ser Ile Gln Asp Met Leu Asp Ala Leu Gly
 65 70 75 80
 Lys Leu Ile Pro Val Leu Arg Ala Val Gly Gly Ala Arg Pro Gln
 85 90 95
 Glu Ser Asp Gln Pro Thr Ser Gln Gly Ser Val Thr Lys Leu Leu Glu
 100 105 110
 Lys Ile Leu Gln Arg Ala Ser Leu Asp Pro Val Leu Gly Gln Ala Gln

115	120	125	
Asp Ser Met Arg Lys Phe Ser Asp Ala Ile Arg Asp Leu Ala Gln Glu			
130	135	140	
Leu Leu Thr Leu Pro Ser Leu Met Glu Leu Arg Ala Leu Leu Arg Arg			
145	150	155	160
Pro Arg Gly Ser Ala Gly Ser Leu Glu Leu Val Ser Glu Ala Leu Cys			
165	170	175	
Ser Thr Lys Gly Pro Ser Ser Pro Gly Gly Leu Ser Leu Asn Trp Tyr			
180	185	190	
Glu Ala Asn Gln Leu Asn Glu Phe Met Gly Pro Glu Val Ala Pro Ala			
195	200	205	
Leu Pro Asp Asn Ser Leu Ser Pro Ala Cys Ser Glu Phe Val Gly Thr			
210	215	220	
Leu Asp Asp His Pro Val Ser Arg Leu Leu Trp Arg Arg Leu Lys Pro			
225	230	235	240
Leu Ile Leu Gly Lys Ile Leu Phe Ala Pro Asp Thr Asn Phe Thr Arg			
245	250	255	
Lys Leu Met Ala Gln Val Asn Gln Thr Phe Glu Glu Leu Ala Leu Leu			
260	265	270	
Arg Asp Leu His Glu Leu Trp Gly Val Leu Gly Pro Gln Ile Phe Asn			
275	280	285	
Phe Met Asn Asp Ser Thr Asn Val Ala Met Leu Gln Arg Leu Leu Asp			
290	295	300	
Val Gly Gly Thr Gly Gln Arg Gln Gln Thr Pro Arg Ala Gln Lys Lys			
305	310	315	320
Leu Glu Ala Ile Lys Asp Phe Leu Asp Pro Ser Arg Gly Gly Tyr Ser			
325	330	335	
Trp Arg Glu Ala His Ala Asp Met Gly Arg Leu Ala Gly Ile Leu Gly			
340	345	350	
Gln Met Met Glu Cys Val Ser Leu Asp Lys Leu Glu Ala Val Pro Ser			
355	360	365	
Glu Glu Ala Leu Val Ser Arg Ala Leu Glu Leu Gly Glu Arg Arg			
370	375	380	
Leu Trp Ala Gly Ile Val Phe Leu Ser Pro Glu His Pro Leu Asp Pro			
385	390	395	400
Ser Glu Leu Ser Ser Pro Ala Leu Ser Pro Gly His Leu Arg Phe Lys			
405	410	415	
Ile Arg Met Asp Ile Asp Asp Val Thr Arg Thr Asn Lys Ile Arg Asp			

420	425	430
Lys Phe Trp Asp Pro Gly Pro Ser Ala Asp Pro Phe Met Asp Leu Arg		
435	440	445
Tyr Val Trp Gly Gly Phe Val Tyr Leu Gln Asp Leu Leu Glu Gln Ala		
450	455	460
Ala Val Arg Val Leu Gly Gly Asn Ser Arg Thr Gly Leu Tyr Leu		
465	470	475
Gln Gln Met Pro His Pro Cys Tyr Val Asp Asp Val Phe Leu Arg Val		
485	490	495
Leu Ser Arg Ser Leu Pro Leu Phe Leu Thr Leu Ala Trp Ile Tyr Ser		
500	505	510
Val Ala Leu Thr Val Lys Ala Val Val Arg Glu Lys Glu Thr Arg Leu		
515	520	525
Arg Glu Thr Met Arg Ala Met Gly Leu Ser Arg Ala Val Leu Trp Leu		
530	535	540
Gly Trp Phe Leu Ser Cys Leu Gly Pro Phe Leu Val Ser Ala Ala Leu		
545	550	555
Leu Val Leu Val Leu Lys Leu Gly Asn Ile Leu Pro Tyr Ser His Pro		
565	570	575
Val Val Ile Phe Leu Phe Leu Ala Ala Phe Ala Val Ala Thr Val Ala		
580	585	590
Gln Ser Phe Leu Leu Ser Ala Phe Phe Ser Arg Ala Asn Leu Ala Ala		
595	600	605
Ala Cys Gly Gly Leu Ala Tyr Phe Ala Leu Tyr Leu Pro Tyr Val Leu		
610	615	620
Cys Val Ala Trp Arg Glu Arg Leu His Leu Gly Gly Leu Leu Ala Ala		
625	630	635
Ser Leu Leu Ser Pro Val Ala Phe Gly Phe Gly Cys Glu Ser Leu Ala		
645	650	655
Leu Leu Glu Glu Gln Gly Asp Gly Ala Gln Trp His Asn Leu Gly Thr		
660	665	670
Gly Pro Ala Glu Asp Val Phe Ser Leu Ala Gln Val Ser Ala Phe Leu		
675	680	685
Leu Leu Asp Ala Val Ile Tyr Gly Leu Ala Leu Trp Tyr Leu Glu Ala		
690	695	700
Val Cys Pro Gly Gln Tyr Gly Ile Pro Glu Pro Trp Asn Phe Pro Phe		
705	710	715
Arg Arg Ser Tyr Trp Cys Gly Pro Gly Pro Pro Lys Ser Ser Val Leu		

725	730	735
Ala Pro Ala Pro Gln Asp Pro Lys Val Leu Val Glu Glu Pro Pro Leu		
740	745	750
Gly Leu Val Pro Gly Val Ser Ile Arg Gly Leu Lys Lys His Phe Arg		
755	760	765
Gly Cys Pro Gln Pro Ala Leu Gln Gly Leu Asn Leu Asp Phe Tyr Glu		
770	775	780
Gly His Ile Thr Ala Phe Leu Gly His Asn Gly Ala Gly Lys Thr Thr		
785	790	795
Thr Leu Ser Ile Leu Ser Gly Leu Phe Pro Pro Ser Ser Gly Ser Ala		
805	810	815
Ser Ile Leu Gly His Asp Val Gln Thr Asn Met Ala Ala Ile Arg Pro		
820	825	830
His Leu Gly Ile Cys Pro Gln Tyr Asn Val Leu Phe Asp Met Leu Thr		
835	840	845
Val Glu Glu His Val Trp Phe Tyr Gly Arg Leu Lys Gly Val Ser Ala		
850	855	860
Ala Ala Met Gly Pro Glu Arg Glu Arg Leu Ile Arg Asp Val Gly Leu		
865	870	875
Thr Leu Lys Arg Asp Thr Gln Thr Arg His Leu Ser Gly Gly Met Gln		
885	890	895
Arg Lys Leu Ser Val Ala Ile Ala Phe Val Gly Gly Ser Arg Val Val		
900	905	910
Ile Met Asp Glu Pro Thr Ala Gly Val Asp Pro Ala Ser Arg Arg Gly		
915	920	925
Ile Trp Glu Leu Leu Lys Tyr Arg Glu Gly Arg Thr Leu Ile Leu		
930	935	940
Ser Thr His His Leu Asp Glu Ala Glu Leu Leu Gly Asp Arg Val Ala		
945	950	955
Met Val Ala Gly Gly Ser Leu Cys Cys Cys Gly Ser Pro Leu Phe Leu		
965	970	975
Arg Arg His Leu Gly Cys Gly Tyr Tyr Leu Thr Leu Val Lys Ser Ser		
980	985	990
Gln Ser Leu Val Thr His Asp Ala Lys Gly Asp Ser Glu Asp Pro Arg		
995	1000	1005
Arg Glu Lys Lys Ser Asp Gly Asn Gly Arg Thr Ser Asp Thr Ala Phe		
1010	1015	1020
Thr Arg Gly Thr Ser Asp Lys Ser Asn Gln Ala Pro Ala Pro Gly Ala		

1025 1030 1035 1040
Val Pro Ile Thr Pro Ser Thr Ala Arg Ile Leu Glu Leu Val Gln Gln
1045 1050 1055
His Val Pro Gly Ala Gln Leu Val Glu Asp Leu Pro His Glu Leu Leu
1060 1065 1070
Leu Val Leu Pro Tyr Ala Gly Ala Leu Asp Gly Ser Phe Ala Met Val
1075 1080 1085
Phe Gln Glu Leu Asp Gln Gln Leu Glu Leu Leu Gly Leu Thr Gly Tyr
1090 1095 1100
Gly Ile Ser Asp Thr Asn Leu Glu Glu Ile Phe Leu Lys Val Val Glu
1105 1110 1115 1120
Asp Ala His Arg Glu Gly Asp Ser Arg Pro Gln Leu His Leu Arg
1125 1130 1135
Thr Cys Thr Pro Gln Pro Pro Thr Gly Pro Glu Ala Ser Val Leu Glu
1140 1145 1150
Asn Gly Glu Leu Ala Lys Leu Val Leu Asp Pro Gln Ala Pro Gln Gly
1155 1160 1165
Leu Ala Pro Asn Ala Ala Gln Val Gln Gly Trp Thr Leu Thr Cys Gln
1170 1175 1180
Gln Leu Arg Ala Leu Leu His Lys Arg Phe Leu Leu Ala Arg Arg Ser
1185 1190 1195 1200
Arg Arg Gly Leu Phe Ala Gln Val Val Leu Pro Ala Leu Phe Val Gly
1205 1210 1215
Leu Ala Leu Phe Phe Ser Leu Ile Val Pro Pro Phe Gly Gln Tyr Pro
1220 1225 1230
Pro Leu Gln Leu Ser Pro Ala Met Tyr Gly Pro Gln Val Ser Phe Phe
1235 1240 1245
Ser Glu Asp Ala Pro Gly Asp Pro Asn Arg Met Lys Leu Leu Glu Ala
1250 1255 1260
Leu Leu Gly Glu Ala Gly Leu Gln Glu Pro Ser Met Gln Asp Lys Asp
1265 1270 1275 1280
Ala Arg Gly Ser Glu Cys Thr His Ser Leu Ala Cys Tyr Phe Thr Val
1285 1290 1295
Pro Glu Val Pro Pro Asp Val Ala Ser Ile Leu Ala Ser Gly Asn Trp
1300 1305 1310
Thr Pro Glu Ser Pro Ser Pro Ala Cys Gln Cys Ser Gln Pro Gly Ala
1315 1320 1325
Arg Arg Leu Leu Pro Asp Cys Pro Ala Gly Ala Gly Pro Pro Pro

1330 1335 1340

Pro Gln Ala Val Ala Gly Leu Gly Glu Val Val Gln Asn Leu Thr Gly
1345 1350 1355 1360

Arg Asn Val Ser Asp Phe Leu Val Lys Thr Tyr Pro Ser Leu Val Arg
1365 1370 1375

Arg Gly Leu Lys Thr Lys Lys Trp Val Asp Glu Val Arg Tyr Gly Gly
1380 1385 1390

Phe Ser Leu Gly Gly Arg Asp Pro Asp Leu Pro Thr Gly His Glu Val
1395 1400 1405

Val Arg Thr Leu Ala Glu Ile Arg Ala Leu Leu Ser Pro Gln Pro Gly
1410 1415 1420

Asn Ala Leu Asp Arg Ile Leu Asn Asn Leu Thr Gln Trp Ala Leu Gly
1425 1430 1435 1440

Leu Asp Ala Arg Asn Ser Leu Lys Ile Trp Phe Asn Asn Lys Gly Trp
1445 1450 1455

His Ala Met Val Ala Phe Val Asn Arg Ala Asn Asn Gly Leu Leu His
1460 1465 1470

Ala Leu Leu Pro Ser Gly Pro Val Arg His Ala His Ser Ile Thr Thr
1475 1480 1485

Leu Asn His Pro Leu Asn Leu Thr Lys Glu Gln Leu Ser Glu Ala Thr
1490 1495 1500

Leu Ile Ala Ser Ser Val Asp Val Leu Val Ser Ile Cys Val Val Phe
1505 1510 1515 1520

Ala Met Ser Phe Val Pro Ala Ser Phe Thr Leu Val Leu Ile Glu Glu
1525 1530 1535

Arg Ile Thr Arg Ala Lys His Leu Gln Leu Val Ser Gly Leu Pro Gln
1540 1545 1550

Thr Leu Tyr Trp Leu Gly Asn Phe Leu Trp Asp Met Cys Asn Tyr Leu
1555 1560 1565

Val Ala Val Cys Ile Val Val Phe Ile Phe Leu Ala Phe Gln Gln Arg
1570 1575 1580

Ala Tyr Val Ala Pro Glu Asn Leu Pro Ala Leu Leu Leu Leu Leu
1585 1590 1595 1600

Leu Tyr Gly Trp Ser Ile Thr Pro Leu Met Tyr Pro Ala Ser Phe Phe
1605 1610 1615

Phe Ser Val Pro Ser Thr Ala Tyr Val Val Leu Thr Cys Ile Asn Leu
1620 1625 1630

Phe Ile Gly Ile Asn Ser Ser Met Ala Thr Phe Val Leu Glu Leu Leu

1635 1640 1645

Ser Asp Gln Asn Leu Gln Glu Val Ser Arg Ile Leu Lys Gln Val Phe
1650 1655 1660

Leu Ile Phe Pro His Phe Cys Leu Gly Arg Gly Leu Ile Asp Met Val
1665 1670 1675 1680

Arg Asn Gln Ala Met Ala Asp Ala Phe Glu Arg Leu Gly Asp Lys Gln
1685 1690 1695

Phe Gln Ser Pro Leu Arg Trp Asp Ile Ile Gly Lys Asn Leu Leu Ala
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Met Met Ala Gln Gly Pro Leu Phe Leu Leu Ile Thr Leu Leu Leu Gln
1715 1720 1725

His Arg Asn Arg Leu Leu Pro Gln Ser Lys Pro Arg Leu Leu Pro Pro
1730 1735 1740

Leu Gly Glu Glu Asp Glu Asp Val Ala Gln Glu Arg Glu Arg Val Thr
1745 1750 1755 1760

Lys Gly Ala Thr Gln Gly Asp Val Leu Val Leu Arg Asp Leu Thr Lys
1765 1770 1775

Val Tyr Arg Gly Gln Arg Asn Pro Ala Val Asp Arg Leu Cys Leu Gly
1780 1785 1790

Ile Pro Pro Gly Glu Cys Phe Gly Leu Leu Gly Val Asn Gly Ala Gly
1795 1800 1805

Lys Thr Ser Thr Phe Arg Met Val Thr Gly Asp Thr Leu Pro Ser Ser
1810 1815 1820

Gly Glu Ala Val Leu Ala Gly His Asn Val Ala Gln Glu Arg Ser Ala
1825 1830 1835 1840

Ala His Arg Ser Met Gly Tyr Cys Pro Gln Ser Asp Ala Ile Phe Asp
1845 1850 1855

Leu Leu Thr Gly Arg Glu His Leu Glu Leu Phe Ala Arg Leu Arg Gly
1860 1865 1870

Val Pro Glu Ala Gln Val Ala Gln Thr Ala Leu Ser Gly Leu Val Arg
1875 1880 1885

Leu Gly Leu Pro Ser Tyr Ala Asp Arg Pro Ala Gly Thr Tyr Ser Gly
1890 1895 1900

Gly Asn Lys Arg Lys Leu Ala Thr Ala Leu Ala Leu Val Gly Asp Pro
1905 1910 1915 1920

Ala Val Val Phe Leu Asp Glu Pro Thr Thr Gly Met Asp Pro Ser Ala
1925 1930 1935

Arg Arg Phe Leu Trp Asn Ser Leu Leu Ser Val Val Arg Glu Gly Arg

1940	1945	1950
Ser Val Val Leu Thr Ser His Ser Met Glu Glu Cys Glu Ala Leu Cys		
1955	1960	1965
Thr Arg Leu Ala Ile Met Val Asn Gly Arg Phe Arg Cys Leu Gly Ser		
1970	1975	1980
Ser Gln His Leu Lys Gly Arg Phe Gly Ala Gly His Thr Leu Thr Leu		
1985	1990	1995
Arg Val Pro Pro Asp Gln Pro Glu Pro Ala Ile Ala Phe Ile Arg Ile		
2005	2010	2015
Thr Phe Pro Gly Ala Glu Leu Arg Glu Val His Gly Ser Arg Leu Arg		
2020	2025	2030
Phe Gln Leu Pro Pro Gly Gly Arg Cys Thr Leu Thr Arg Val Phe Arg		
2035	2040	2045
Glu Leu Ala Ala Gln Gly Arg Ala His Gly Val Glu Asp Phe Ser Val		
2050	2055	2060
Ser Gln Thr Thr Leu Glu Glu Val Phe Leu Tyr Phe Ser Lys Asp Gln		
2065	2070	2075
2080		
Gly Glu Glu Glu Ser Ser Arg Gln Glu Ala Glu Glu Glu Val		
2085	2090	2095
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ggggcaggaa gttgccccgca gccgcaccgc acgtcttcag cccgaccgtt gtcctgacct 180		
ctctgtccccg tcccccgcccc agtctcacc atg gcc ttc tgg aca cag ctg atg 233		

Met	Ala	Phe	Trp	Thr	Gln	Leu	Met										
1							5										
ctg	ctg	ctc	tgg	aag	aat	ttc	atg	tat	cgc	cg	aga	cag	ccg	gtc	cag		281
Leu	Leu	Leu	Trp	Lys	Asn	Phe	Met	Tyr	Arg	Arg	Arg	Gln	Pro	Val	Gln		
ctc	ctg	gtc	gaa	ttg	ctg	tgg	cct	ctc	ttc	ctc	ttc	atc	ctg	gtg			329
Leu	Leu	Val	Glu	Leu	Leu	Trp	Pro	Leu	Phe	Leu	Phe	Phe	Ile	Leu	Val		
gct	gtt	cgc	cac	tcc	cac	ccg	ccc	ctg	gag	cac	cat	gaa	tgc	cac	ttc		377
Ala	Val	Arg	His	Ser	His	Pro	Pro	Leu	Glu	His	His	Glu	Cys	His	Phe		
cca	aac	aag	cca	ctg	cca	tcg	gcg	ggc	acc	gtg	ccc	tgg	ctc	cag	ggt		425
Pro	Asn	Lys	Pro	Leu	Pro	Ser	Ala	Gly	Thr	Val	Pro	Trp	Leu	Gln	Gly		
ctc	atc	tgt	aat	gtg	aac	aac	acc	tgc	ttt	ccg	cag	ctg	aca	ccg	ggc		473
Leu	Ile	Cys	Asn	Val	Asn	Asn	Asn	Thr	Cys	Phe	Pro	Gln	Leu	Thr	Pro	Gly	
gag	gag	ccc	ggg	cgc	ctg	agc	aac	ttc	aac	gac	tcc	ctg	gtc	tcc	cgg		521
Glu	Glu	Pro	Gly	Arg	Leu	Ser	Asn	Phe	Asn	Asp	Ser	Leu	Val	Ser	Arg		
ctg	cta	gcc	gat	gcc	cgc	act	gtg	ctg	gga	ggg	gcc	agt	gcc	cac	agg		569
Leu	Lau	Ala	Asp	Ala	Arg	Thr	Val	Leu	Gly	Gly	Ala	Ser	Ala	His	Arg		
acg	ctg	gct	ggc	cta	ggg	aag	ctg	atc	gcc	acg	ctg	agg	gct	gca	cgc		617
Thr	Lau	Ala	Gly	Lys	Leu	Ile	Ala	Thr	Leu	Arg	Ala	Ala	Arg				
agc	acg	gcc	cag	cct	caa	cca	acc	aag	cag	tct	cca	ctg	gaa	cca	ccc		665
Ser	Thr	Ala	Gln	Pro	Gln	Pro	Thr	Lys	Gln	Ser	Pro	Leu	Glu	Pro	Pro		
atg	ctg	gat	gtc	gcg	gag	ctg	acg	tca	ctg	ctg	cg	acg	gaa	tcc		713	
Met	Leu	Asp	Val	Ala	Glu	Leu	Leu	Thr	Ser	Leu	Leu	Arg	Thr	Glu	Ser		
ctg	ggg	ttg	gca	ctg	ggc	caa	gcc	cag	gag	ccc	ttg	cac	agc	ttg	ttg		761
Leu	Gly	Leu	Ala	Leu	Gly	Gln	Ala	Gln	Glu	Pro	Leu	His	Ser	Leu	Leu		
gag	gcc	gct	gag	gac	ctg	ggc	cag	gag	ctc	ctg	g	cg	ctg	cg	ac		809
Glu	Ala	Ala	Glu	Asp	Leu	Ala	Gln	Glu	Leu	Leu	Ala	Leu	Arg	Ser	Leu		
gtg	gag	ctt	cg	gca	ctg	ctg	cag	aga	ccc	cga	ggg	acc	agc	ggc	ccc		857
Val	Glu	Leu	Arg	Ala	Leu	Leu	Gln	Arg	Pro	Arg	Gly	Thr	Ser	Gly	Pro		
ctg	gag	ttg	ctg	tca	gag	gcc	ctc	tgc	agt	gtc	agg	gga	cct	agc	agc		905
Leu	Glu	Leu	Leu	Ser	Glu	Ala	Leu	Cys	Ser	Val	Arg	Gly	Pro	Ser	Ser		

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aca gtg ggc ccc tcc ctc aac tgg tac gag gct agt gac ctg atg gag Thr Val Gly Pro Ser Leu Asn Trp Tyr Glu Ala Ser Asp Leu Met Glu 235	240	245	953
ctg gtg ggg cag gag cca gaa tcc gcc ctg cca gac agc agc ctg agc Leu Val Gly Gln Glu Pro Glu Ser Ala Leu Pro Asp Ser Ser Leu Ser 250	255	260	1001
ccc gcc tgc tcg gag ctg att gga gcc ctg gac agc cac ccg ctg tcc Pro Ala Cys Ser Glu Leu Ile Gly Ala Leu Asp Ser His Pro Leu Ser 265	270	275	1049
cgc ctg ctc tgg aga cgc ctg aag cct ctg atc ctc ggg aag cta ctc Arg Leu Leu Trp Arg Arg Leu Lys Pro Leu Ile Leu Gly Lys Leu Leu 285	290	295	1097
ttt gca cca gat aca cct ttt acc cgg aag ctc atg gcc cag gtg aac Phe Ala Pro Asp Thr Pro Phe Thr Arg Lys Leu Met Ala Gln Val Asn 300	305	310	1145
cg ^g acc ttc gag gag ctc acc ctg ctg agg gat gtc cgg gag gtg tgg Arg Thr Phe Glu Glu Leu Thr Leu Leu Arg Asp Val Arg Glu Val Trp 315	320	325	1193
gag atg ctg gga ccc cgg atc ttc acc ttc atg aac gac agt tcc aat Glu Met Leu Gly Pro Arg Ile Phe Thr Phe Met Asn Asp Ser Ser Asn 330	335	340	1241
gtg gcc atg ctg cag cgg ctc ctg cag atg cag gat gaa gga aga agg Val Ala Met Leu Gln Arg Leu Leu Gln Met Gln Asp Glu Gly Arg Arg 345	350	355	1289
cag ccc aga cct gga ggc cgg gac cac atg gag gcc ctg cga tcc ttt Gln Pro Arg Pro Gly Gly Arg Asp His Met Glu Ala Leu Arg Ser Phe 365	370	375	1337
ctg gac cct ggg agc ggt ggc tac agc tgg cag gac gca cac gct gat Leu Asp Pro Gly Ser Gly Gly Tyr Ser Trp Gln Asp Ala His Ala Asp 380	385	390	1385
gtg ggg cac ctg gtg ggc acg ctg ggc cga gtg acg gag tgc ctg tcc Val Gly His Leu Val Gly Thr Leu Gly Arg Val Thr Glu Cys Leu Ser 395	400	405	1433
ttg gac aag ctg gag gcg gca ccc tca gag gca gcc ctg gtg tcg cgg Leu Asp Lys Leu Glu Ala Ala Pro Ser Glu Ala Ala Leu Val Ser Arg 410	415	420	1481
gcc ctg caa ctg ctc gcg gaa cat cga ttc tgg gcc ggc gtc gtc ttc Ala Leu Gln Leu Leu Ala Glu His Arg Phe Trp Ala Gly Val Val Phe 425	430	435	1529
ttg gga cct gag gac tct tca gac ccc aca gag cac cca acc cca gac Leu Gly Pro Glu Asp Ser Ser Asp Pro Thr Glu His Pro Thr Pro Asp 445	450	455	1577

ctg ggc ccc ggc cac gtg cgc atc aaa atc cgc atg gac att gac gtg Leu Gly Pro Gly His Val Arg Ile Lys Ile Arg Met Asp Ile Asp Val 460 465 470	1625
gtc acg agg acc aat aag atc agg gac agg ttt tgg gac cct ggc cca Val Thr Arg Thr Asn Lys Ile Arg Asp Arg Phe Trp Asp Pro Gly Pro 475 480 485	1673
gcc gcg gac ccc ctg acc gac ctg cgc tac gtg tgg ggc ggc ttc gtg Ala Ala Asp Pro Leu Thr Asp Leu Arg Tyr Val Trp Gly Gly Phe Val 490 495 500	1721
tac ctg caa gac ctg gtg gag cgt gca gcc gtc cgc gtg ctc agc ggc Tyr Leu Gln Asp Leu Val Glu Arg Ala Ala Val Arg Val Leu Ser Gly 505 510 515 520	1769
gcc aac ccc cgg gcc ggc ctc tac ctg cag cag atg ccc tat ccg tgc Ala Asn Pro Arg Ala Gly Leu Tyr Leu Gln Gln Met Pro Tyr Pro Cys 525 530 535	1817
tat gtg gac gac gtg ttc ctg cgt gtg ctg agc cgg tgc ctg ccg ctc Tyr Val Asp Asp Val Phe Leu Arg Val Leu Ser Arg Ser Leu Pro Leu 540 545 550	1865
ttc ctg acg ctg gcc tgg atc tac tcc gtg aca ctg aca gtg aag gcc Phe Leu Thr Leu Ala Trp Ile Tyr Ser Val Thr Leu Thr Val Lys Ala 555 560 565	1913
gtg gtg cgg gag aag gag acg cgg ctg cgg gac acc atg cgc gcc atg Val Val Arg Glu Lys Glu Thr Arg Leu Arg Asp Thr Met Arg Ala Met 570 575 580	1961
ggg ctc agc cgc gcg gtg ctc tgg cta ggc tgg ttc ctc agc tgc ctc Gly Leu Ser Arg Ala Val Leu Trp Leu Gly Trp Phe Leu Ser Cys Leu 585 590 595 600	2009
ggg ccc ttc ctg ctc agc gcc gcg ctg ctg gtt ctg gtg ctc aag ctg Gly Pro Phe Leu Leu Ser Ala Ala Leu Leu Val Leu Val Leu Lys Leu 605 610 615	2057
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gca gcc ttc gcg gtg gcc acg gtg acc cag agc ttc ctg ctc agc gcc Ala Ala Phe Ala Val Ala Thr Val Thr Gln Ser Phe Leu Leu Ser Ala 635 640 645	2153
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ctg ccc gcg ggt ggc cgc gtg gcc gcg agc ctg ctg tcg ccc gtg gcc Leu Pro Ala Gly Gly Arg Val Ala Ala Ser Leu Leu Ser Pro Val Ala 685 690 695	2297
ttc ggc ttc ggc tgc gag agc ctg gct ctg ctg gag gag cag ggc gag Phe Gly Phe Gly Cys Glu Ser Leu Ala Leu Leu Glu Glu Gln Gly Glu 700 705 710	2345
ggc gcg cag tgg cac aac gtg ggc acc cgg cct acg gca gac gtc ttc Gly Ala Gln Trp His Asn Val Gly Thr Arg Pro Thr Ala Asp Val Phe 715 720 725	2393
agc ctg gcc cag gtc tct ggc ctt ctg ctg gac gcg gcg ctc tac Ser Leu Ala Gln Val Ser Gly Leu Leu Leu Asp Ala Ala Leu Tyr 730 735 740	2441
ggc ctc gcc acc tgg tac ctg gaa gct gtg tgc cca ggc cag tac ggg Gly Leu Ala Thr Trp Tyr Leu Glu Ala Val Cys Pro Gly Gln Tyr Gly 745 750 755 760	2489
atc cct gaa cca tgg aat ttt cct ttt cgg agg agc tac tgg tgc gga Ile Pro Glu Pro Trp Asn Phe Pro Arg Arg Ser Tyr Trp Cys Gly 765 770 775	2537
cct cgg ccc ccc aag agt cca gcc cct tgc ccc acc ccc ctg gac cca Pro Arg Pro Pro Lys Ser Pro Ala Pro Cys Pro Thr Pro Leu Asp Pro 780 785 790	2585
aag gtg ctg gta gaa gag gca ccc ggc ctg agt cct ggc gta tcc Lys Val Leu Val Glu Ala Pro Pro Gly Leu Ser Pro Gly Val Ser 795 800 805	2633
gtt cgc agc ctg gag aag cgc ttt cct gga agc ccc cag cca gcc ctg Val Arg Ser Leu Glu Lys Arg Phe Pro Gly Ser Pro Gln Pro Ala Leu 810 815 820	2681
cgg ggg ctc agc ctg gac ttc tac cag ggc cac atc acc gcc ttc ctg Arg Gly Leu Ser Leu Asp Phe Tyr Gln Gly His Ile Thr Ala Phe Leu 825 830 835 840	2729
ggc cac aac ggg gcc ggc aag acc acc acc ctg tcc atc ttg agt ggc Gly His Asn Gly Ala Gly Lys Thr Thr Leu Ser Ile Leu Ser Gly 845 850 855	2777
ctc ttc cca ccc agt ggt ggc tct gcc ttc atc ctg ggc cac gac gtc Leu Phe Pro Pro Ser Gly Gly Ser Ala Phe Ile Leu Gly His Asp Val 860 865 870	2825
cgc tcc agc atg gcc gcc atc cgg ccc cac ctg ggc gtc tgt cct cag Arg Ser Ser Met Ala Ala Ile Arg Pro His Leu Gly Val Cys Pro Gln 875 880 885	2873
tac aac gtg ctg ttt gac atg ctg acc gtg gac gag cac gtc tgg ttc Tyr Asn Val Leu Phe Asp Met Leu Thr Val Asp Glu His Val Trp Phe 890 895 900	2921
tat ggg cgg ctg aag ggt ctg agt gcc gct gta gtg ggc ccc gag cag	2969

Tyr Gly Arg Leu Lys Gly Leu Ser Ala Ala Val Val Gly Pro Glu Gln			
905	910	915	920
gac cgt ctg ctg cag gat gtg ggg ctg gtc tcc aag cag cgt gtg cag			3017
Asp Arg Leu Leu Gln Asp Val Gly Leu Val Ser Lys Gln Ser Val Gln			
925	930	935	
act cgc cac ctc tct ggt ggg atg caa cgg aag ctg tcc gtg gcc att			3065
Thr Arg His Leu Ser Gly Gly Met Gln Arg Lys Leu Ser Val Ala Ile			
940	945	950	
gcc ttt gtg ggc ggc tcc caa gtt gtt atc ctg gac gag cct acg gct			3113
Ala Phe Val Gly Gly Ser Gln Val Val Ile Leu Asp Glu Pro Thr Ala			
955	960	965	
ggc gtg gat cct gct tcc cgc cgc ggt att tgg qag ctg ctg ctc aaa			3161
Gly Val Asp Pro Ala Ser Arg Arg Gly Ile Trp Glu Leu Leu Leu Lys			
970	975	980	
tac cga gaa ggt cgc acg ctg atc ctc tcc acc cac cac ctg gat gag			3209
Tyr Arg Glu Gly Arg Thr Leu Ile Leu Ser Thr His His Leu Asp Glu			
985	990	995	1000
gca gag ctg ctg gga gac cgt gtg gct gtg gca ggt ggc cgc ttg			3257
Ala Glu Leu Leu Gly Asp Arg Val Ala Val Val Ala Gly Gly Arg Leu			
1005	1010	1015	
tgc tgc tgt ggc tcc cca ctc ttc ctg cgc cgt cac ctg ggc tcc ggc			3305
Cys Cys Cys Gly Ser Pro Leu Phe Leu Arg Arg His Leu Gly Ser Gly			
1020	1025	1030	
tac tac ctg acg ctg gtg aag gcc cgc ctg ccc ctg acc acc aat gag			3353
Tyr Tyr Leu Thr Leu Val Lys Ala Arg Leu Pro Leu Thr Thr Asn Glu			
1035	1040	1045	
aag gct gac act gac atg gag ggc agt gtg gac acc agg cag gaa aag			3401
Lys Ala Asp Thr Asp Met Glu Gly Ser Val Asp Thr Arg Gln Glu Lys			
1050	1055	1060	
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Lys Asn Gly Ser Gln Gly Ser Arg Val Gly Thr Pro Gln Leu Leu Ala			
1065	1070	1075	1080
ctg gta cag cac tgg gtg ccc ggg gca cgg ctg gtg gag gag ctg cca			3497
Leu Val Gln His Trp Val Pro Gly Ala Arg Leu Val Glu Glu Leu Pro			
1085	1090	1095	
cac gag ctg gtg ctg gtg ccc tac acg ggt gcc cat gac ggc agc			3545
His Glu Leu Val Leu Val Pro Tyr Thr Gly Ala His Asp Gly Ser			
1100	1105	1110	
tcc gcc aca ctc ttc cga gag cta gac acg cgg ctg gcg gag ctg agg			3593
Phe Ala Thr Leu Phe Arg Glu Leu Asp Thr Arg Leu Ala Glu Leu Arg			
1115	1120	1125	
ctc act ggc tac ggg atc tcc gac acc agc ctc gag gag atc ttc ctg			3641
Leu Thr Gly Tyr Gly Ile Ser Asp Thr Ser Leu Glu Glu Ile Phe Leu			

1130	1135	1140	
aag gtg gtg gag gag tgt gct gcg gac aca gat atg gag gat ggc agc Lys Val Val Glu Glu Cys Ala Ala Asp Thr Asp Met Glu Asp Gly Ser			3689
1145	1150	1155	1160
tgc ggg cag cac cta tgc aca ggc att gct ggc cta gac gta acc ctg Cys Gly Gln His Leu Cys Thr Gly Ile Ala Gly Leu Asp Val Thr Leu			3737
1165	1170	1175	
cgc ctc aag atg ccg cca cag gag aca gcg ctg gag aac ggg gaa cca Arg Leu Lys Met Pro Pro Gln Glu Thr Ala Leu Glu Asn Gly Glu Pro			3785
1180	1185	1190	
gct ggg tca gcc cca gag act gac cag ggc tct ggg cca gac gcc gtg Ala Gly Ser Ala Pro Glu Thr Asp Gln Gly Ser Gly Pro Asp Ala Val			3833
1195	1200	1205	
ggc cggtt ctt ctt Gly Arg Val Gln Gly Trp Ala Leu Thr Arg Gln Gln Leu Gln Ala Leu			3881
1210	1215	1220	
ctt ctc aag cgc ttt ctg ctt gcc cgc cgc agc cgc cgc ggc ctg ttc Leu Leu Lys Arg Phe Leu Leu Ala Arg Arg Ser Arg Arg Gly Leu Phe			3929
1225	1230	1235	1240
gcc cag atc gtg ctg cct gcc ctc ttt gtg ggc ctg gcc ctc gtg ttc Ala Gln Ile Val Leu Pro Ala Leu Phe Val Gly Leu Ala Leu Val Phe			3977
1245	1250	1255	
agc ctc atc gtg cct ctt ttc ggg cac tac ccg gct ctg cgg ctc agt Ser Leu Ile Val Pro Pro Phe Gly His Tyr Pro Ala Leu Arg Leu Ser			4025
1260	1265	1270	
ccc acc atg tac ggt gct cag gtg tcc ttc agt gag gac gcc cca Pro Thr Met Tyr Gly Ala Gln Val Ser Phe Phe Ser Glu Asp Ala Pro			4073
1275	1280	1285	
ggg gac cct gga cgt gcc cgg ctg ctc gag gcg ctg ctg cag gag gca Gly Asp Pro Gly Arg Ala Arg Leu Leu Glu Ala Leu Leu Gln Glu Ala			4121
1290	1295	1300	
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1305	1310	1315	1320
cca gaa gtt cct gct gaa gtg gcc aag gtc ttg gcc agt ggc aac tgg Pro Glu Val Pro Ala Glu Val Ala Lys Val Leu Ala Ser Gly Asn Trp			4217
1325	1330	1335	
acc cca gag tct cca tcc cca gcc tgc cag tgt agc cag ccc ggt gcc Thr Pro Glu Ser Pro Ser Pro Ala Cys Gln Cys Ser Gln Pro Gly Ala			4265
1340	1345	1350	
cgg cgc ctg ctg ccc gac tgc ccg gct gca gct ggt ggt ccc cct ccg Arg Arg Leu Leu Pro Asp Cys Pro Ala Ala Gly Gly Pro Pro Pro			4313
1355	1360	1365	

ccc cag gca gtg acc ggc tct ggg gaa gtg gtt cag aac ctg aca ggc Pro Gln Ala Val Thr Gly Ser Gly Glu Val Val Gln Asn Leu Thr Gly	1370	1375	1380	4361	
cgg aac ctg tct gac ttc ctg gtc aag acc tac ccg cgc ctg gtg cgc Arg Asn Leu Ser Asp Phe Leu Val Lys Thr Tyr Pro Arg Leu Val Arg	1385	1390	1395	1400	4409
cag ggc ctg aag act aag aag tgg gtg aat gag gtc agg tac gga ggc Gln Gly Leu Lys Thr Lys Lys Trp Val Asn Glu Val Arg Tyr Gly Gly	1405	1410	1415	4457	
ttc tcg ctg ggg ggc cga gac cca ggc ctg ccc tcg ggc caa gag ttg Phe Ser Leu Gly Gly Arg Asp Pro Gly Leu Pro Ser Gly Gln Glu Leu	1420	1425	1430	4505	
ggc cgc tca gtg gag gag ttg tgg gcg ctg ctg agt ccc ctg cct ggc Gly Arg Ser Val Glu Glu Leu Trp Ala Leu Leu Ser Pro Leu Pro Gly	1435	1440	1445	4553	
ggg gcc ctc gac cgt gtc ctg aaa aac ctc aca gcc tgg gct cac agc Gly Ala Leu Asp Arg Val Leu Lys Asn Leu Thr Ala Trp Ala His Ser	1450	1455	1460	4601	
ctg gat gct cag gac agt ctc aag atc tgg ttc aac aac aaa ggc tgg Leu Asp Ala Gln Asp Ser Leu Lys Ile Trp Phe Asn Asn Lys Gly Trp	1465	1470	1475	1480	4649
cac tcc atg gtg gcc ttt gtc aac cga gcc agc aac gca atc ctc cgt His Ser Met Val Ala Phe Val Asn Arg Ala Ser Asn Ala Ile Leu Arg	1485	1490	1495	4697	
gct cac ctg ccc cca ggc ccg gcc cgc cac gcc cac agc atc acc aca Ala His Leu Pro Pro Gly Pro Ala Arg His Ala His Ser Ile Thr Thr	1500	1505	1510	4745	
ctc aac cac ccc ttg aac ctc acc aag gag cag ctg tct gag gct gca Leu Asn His Pro Leu Asn Leu Thr Lys Glu Gln Leu Ser Glu Ala Ala	1515	1520	1525	4793	
ctg atg gcc tcc tcg gtg gac gtc ctc gtc tcc atc tgt gtg gtc ttt Leu Met Ala Ser Ser Val Asp Val Leu Val Ser Ile Cys Val Val Phe	1530	1535	1540	4841	
gcc atg tcc ttt gtc ccg gcc agc ttc act ctt gtc ctc att gag gag Ala Met Ser Phe Val Pro Ala Ser Phe Thr Leu Val Leu Ile Glu Glu	1545	1550	1555	1560	4889
cga gtc acc cga gcc aag cac ctg cag ctc atg ggg ggc ctg tcc ccc Arg Val Thr Arg Ala Lys His Leu Gln Leu Met Gly Gly Leu Ser Pro	1565	1570	1575	4937	
acc ctc tac tgg ctt ggc aac ttt ctc tgg gac atg tgt aac tac ttg Thr Leu Tyr Trp Leu Gly Asn Phe Leu Trp Asp Met Cys Asn Tyr Leu	1580	1585	1590	4985	

gtg cca gca tgc atc gtg gtg ctc atc ttt ctg gcc ttc cag cag agg		5033
Val Pro Ala Cys Ile Val Val Leu Ile Phe Leu Ala Phe Gln Gln Arg		
1595	1600	1605
gca tat gtg gcc cct gcc aac ctg cct gct ctc ctg ctg ttg cta cta		5081
Ala Tyr Val Ala Pro Ala Asn Leu Pro Ala Leu Leu Leu Leu Leu		
1610	1615	1620
ctg tat ggc tgg tcg atc aca ccg ctc atg tac cca gcc tcc ttc ttc		5129
Leu Tyr Gly Trp Ser Ile Thr Pro Leu Met Tyr Pro Ala Ser Phe Phe		
1625	1630	1635
ttc tcc gtg ccc agc aca gcc tat gtg gtg ctc acc tgc ata aac ctc		5177
Phe Ser Val Pro Ser Thr Ala Tyr Val Val Leu Thr Cys Ile Asn Leu		
1645	1650	1655
ttt att ggc atc aat gga agc atg gcc acc ttt gtg ctt gag ctc ttc		5225
Phe Ile Gly Ile Asn Gly Ser Met Ala Thr Phe Val Leu Glu Leu Phe		
1660	1665	1670
tct gat cag aag ctg cag gag gtg agc cgg atc ttg aaa cag gtc ttc		5273
Ser Asp Gln Lys Leu Gln Glu Val Ser Arg Ile Leu Lys Gln Val Phe		
1675	1680	1685
ctt atc ttc ccc cac ttc tgc ttg ggc cgg ggg ctc att gac atg gtg		5321
Leu Ile Phe Pro His Phe Cys Leu Gly Arg Gly Leu Ile Asp Met Val		
1690	1695	1700
cgg aac cag gcc atg gat gcc ttt gag cgc ttg gga gac agg cag		5369
Arg Asn Gln Ala Met Ala Asp Ala Phe Glu Arg Leu Gly Asp Arg Gln		
1705	1710	1715
ttc cag tca ccc ctg cgc tgg gag gtg gtc ggc aag aac ctc ttg gcc		5417
Phe Gln Ser Pro Leu Arg Trp Glu Val Val Gly Lys Asn Leu Leu Ala		
1725	1730	1735
atg gtg ata cag ggg ccc ctc ttc ctt ctc aca cta ctg ctg cag		5465
Met Val Ile Gln Gly Pro Leu Phe Leu Leu Phe Thr Leu Leu Gln		
1740	1745	1750
cac cga agc caa ctc ctg cca cag ccc agg gtg agg tct ctg cca ctc		5513
His Arg Ser Gln Leu Leu Pro Gln Pro Arg Val Arg Ser Leu Pro Leu		
1755	1760	1765
ctg gga gag gag gac gag gat gta gcc cgt gaa cgg gag cgg gtg gtc		5561
Leu Gly Glu Glu Asp Glu Asp Val Ala Arg Glu Arg Glu Arg Val Val		
1770	1775	1780
caa gga gcc acc cag ggg gat gtg ttg ctg agg aac ttg acc aag		5609
Gln Gly Ala Thr Gln Gly Asp Val Leu Val Leu Arg Asn Leu Thr Lys		
1785	1790	1795
gta tac cgt ggg cag agg atg cca gct gtt gac cgc ttg tgc ctg ggg		5657
Val Tyr Arg Gly Gln Arg Met Pro Ala Val Asp Arg Leu Cys Leu Gly		
1805	1810	1815
att ccc cct ggt gag tgt ttt ggg ctg ctg ggt gtg aat gga gca ggg		5705

Ile	Pro	Pro	Gly	Glu	Cys	Phe	Gly	Leu	Leu	Gly	Val	Asn	Gly	Ala	Gly		
								1820	1825					1830			
aag	acg	tcc	acg	ttt	cgc	atg	gtg	acg	ggg	gac	aca	ttg	gcc	agc	agg	5753	
Lys	Thr	Ser	Thr	Phe	Arg	Met	Val	Thr	Gly	Asp	Thr	Leu	Ala	Ser	Arg		
								1835	1840					1845			
ggc	gag	gct	gtg	ctg	gca	ggc	cac	agc	gtg	gcc	cg	gaa	ccc	agt	gct	5801	
Gly	Glu	Ala	Val	Ala	Gly	His	Ser	Val	Ala	Arg	Glu	Pro	Ser	Ala			
								1850	1855					1860			
g	cg	cac	ctc	agc	atg	gga	tac	tgc	cct	caa	tcc	gat	gcc	atc	ttt	gag	5849
Ala	His	Leu	Ser	Met	Gly	Tyr	Cys	Pro	Gln	Ser	Asp	Ala	Ile	Phe	Glu		
								1865	1870					1875		1880	
ctg	ctg	acg	ggc	cgc	gag	cac	ctg	gag	ctg	ctt	g	cg	cg	ctg	cg	5897	
Leu	Leu	Thr	Gly	Arg	Glu	His	Leu	Glu	Leu	Leu	Ala	Arg	Leu	Arg	Gly		
								1885	1890					1895			
gtc	ccg	gag	gcc	cag	gtt	gcc	cag	acc	gct	ggc	tca	ggc	ctg	g	cg	5945	
Val	Pro	Glu	Ala	Gln	Val	Ala	Gln	Thr	Ala	Gly	Ser	Gly	Leu	Ala	Arg		
								1900	1905					1910			
ctg	gga	ctc	tca	tgg	tac	gca	gac	cg	cct	gca	ggc	acc	tac	agc	gga	5993	
Leu	Gly	Leu	Ser	Trp	Tyr	Ala	Asp	Arg	Pro	Ala	Gly	Thr	Tyr	Ser	Gly		
								1915	1920					1925			
ggg	aa	aa	cgc	aag	ctg	g	cc	gt	cc	ctg	gtt	ggg	gac	cc		6041	
Gly	Asn	Lys	Arg	Lys	Leu	Ala	Thr	Ala	Leu	Ala	Leu	Val	Gly	Asp	Pro		
								1930	1935					1940			
gcc	gt	gt	ttt	ctg	gac	gag	cc	acc	aca	ggc	atg	gac	ccc	agc	cg	6089	
Ala	Val	Val	Phe	Leu	Asp	Glu	Pro	Thr	Thr	Gly	Met	Asp	Pro	Ser	Ala		
								1945	1950					1955		1960	
cg	cg	t	tt	tgg	aa	agc	ctt	ttg	gcc	gt	gt	cg	gag	ggc	cgt	6137	
Arg	Arg	Phe	Leu	Trp	Asn	Ser	Leu	Leu	Ala	Val	Val	Arg	Glu	Gly	Arg		
								1965	1970					1975			
tca	gt	at	ctc	acc	tcc	cat	agc	atg	gag	gag	tgt	gaa	g	ctc	tgc	6185	
Ser	Val	Met	Leu	Thr	Ser	His	Ser	Met	Glu	Glu	Cys	Glu	Ala	Leu	Cys		
								1980	1985					1990			
tcg	cg	ct	gc	atc	atg	gt	aa	gg	cg	t	cc	cg	cc	agc		6233	
Ser	Arg	Leu	Ala	Ile	Met	Val	Asn	Gly	Arg	Phe	Arg	Cys	Leu	Gly	Ser		
								1995	2000					2005			
ccg	caa	ca	ctc	aag	ggc	aga	t	tc	g	cg	gg	c	at	ct	cc	6281	
Pro	Gln	His	Leu	Lys	Gly	Arg	Phe	Ala	Ala	Gly	His	Thr	Leu	Thr	Leu		
								2010	2015					2020			
cg	gt	cc	gc	gc	agg	tcc	cag	cg	gca	gc	gg	cc	ttc	gt	gc	6329	
Arg	Val	Pro	Ala	Ala	Arg	Ser	Gln	Pro	Ala	Ala	Phe	Val	Ala	Ala			
								2025	2030					2035		2040	
gag	t	tc	c	tt	gg	tc	g	cg	g	ca	ct	gg	cc	cg	cg	6377	
Glu	Phe	Pro	Gly	Ser	Glu	Leu	Arg	Glu	Ala	His	Gly	Gly	Arg	Leu	Arg		

2045	2050	2055	
ttc cag ctg ccg gga ggg cgc tgc gcc ctg gcg cgc gtc ttt gga 6425 Phe Gln Leu Pro Pro Gly Gly Arg Cys Ala Leu Ala Arg Val Phe Gly			
2060	2065	2070	
gag ctg gcg gtg cac ggc gca gag cac ggc gtg gag gac ttt tcc gtg 6473 Glu Leu Ala Val His Gly Ala Glu His Gly Val Glu Asp Phe Ser Val			
2075	2080	2085	
agc cag acg atg ctg gag gag gta ttc ttg tac ttc tcc aag gac cag 6521 Ser Gln Thr Met Leu Glu Glu Val Phe Leu Tyr Phe Ser Lys Asp Gln			
2090	2095	2100	
ggg aag gac gag gac acc gaa gag cag aag gag gca gga gtg gga gtg 6569 Gly Lys Asp Glu Asp Thr Glu Glu Gln Lys Glu Ala Gly Val Gly Val			
2105	2110	2115	2120
gac ccc gcg cca ggc ctg cag cac ccc aaa cgc gtc agc cag ttc ctc 6617 Asp Pro Ala Pro Gly Leu Gln His Pro Lys Arg Val Ser Gln Phe Leu			
2125	2130	2135	
gat gac cct agc act gcc gag act gtg ctc tga gcctccctcc cctgcggggc 6670 Asp Asp Pro Ser Thr Ala Glu Thr Val Leu			
2140	2145		
cgcgaaaaagg ccctggaaat ggcaaggca aggttagatg cctaggagcc ctggactcag 6730			
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ggtaaaaaaaa aaaa 6804			
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Tyr Arg Arg Arg Gln Pro Val Gln Leu Leu Val Glu Leu Leu Trp Pro			
20	25	30	
Leu Phe Leu Phe Phe Ile Leu Val Ala Val Arg His Ser His Pro Pro			
35	40	45	
Leu Glu His His Glu Cys His Phe Pro Asn Lys Pro Leu Pro Ser Ala			
50	55	60	
Gly Thr Val Pro Trp Leu Gln Gly Leu Ile Cys Asn Val Asn Asn Thr			
65	70	75	80
Cys Phe Pro Gln Leu Thr Pro Gly Glu Glu Pro Gly Arg Leu Ser Asn			
85	90	95	

Phe Asn Asp Ser Leu Val Ser Arg Leu Leu Ala Asp Ala Arg Thr Val
100 105 110

Leu Gly Gly Ala Ser Ala His Arg Thr Leu Ala Gly Leu Gly Lys Leu
115 120 125

Ile Ala Thr Leu Arg Ala Ala Arg Ser Thr Ala Gln Pro Gln Pro Thr
130 135 140

Lys Gln Ser Pro Leu Glu Pro Pro Met Leu Asp Val Ala Glu Leu Leu
145 150 155 160

Thr Ser Leu Leu Arg Thr Glu Ser Leu Gly Leu Ala Leu Gly Gln Ala
165 170 175

Gln Glu Pro Leu His Ser Leu Leu Glu Ala Ala Glu Asp Leu Ala Gln
180 185 190

Glu Leu Leu Ala Leu Arg Ser Leu Val Glu Leu Arg Ala Leu Leu Gln
195 200 205

Arg Pro Arg Gly Thr Ser Gly Pro Leu Glu Leu Leu Ser Glu Ala Leu
210 215 220

Cys Ser Val Arg Gly Pro Ser Ser Thr Val Gly Pro Ser Leu Asn Trp
225 230 235 240

Tyr Glu Ala Ser Asp Leu Met Glu Leu Val Gly Gln Glu Pro Glu Ser
245 250 255

Ala Leu Pro Asp Ser Ser Leu Ser Pro Ala Cys Ser Glu Leu Ile Gly
260 265 270

Ala Leu Asp Ser His Pro Leu Ser Arg Leu Leu Trp Arg Arg Leu Lys
275 280 285

Pro Leu Ile Leu Gly Lys Leu Leu Phe Ala Pro Asp Thr Pro Phe Thr
290 295 300

Arg Lys Leu Met Ala Gln Val Asn Arg Thr Phe Glu Glu Leu Thr Leu
305 310 315 320

Leu Arg Asp Val Arg Glu Val Trp Glu Met Leu Gly Pro Arg Ile Phe
325 330 335

Thr Phe Met Asn Asp Ser Ser Asn Val Ala Met Leu Gln Arg Leu Leu
340 345 350

Gln Met Gln Asp Glu Gly Arg Arg Gln Pro Arg Pro Gly Gly Arg Asp
355 360 365

His Met Glu Ala Leu Arg Ser Phe Leu Asp Pro Gly Ser Gly Gly Tyr
370 375 380

Ser Trp Gln Asp Ala His Ala Asp Val Gly His Leu Val Gly Thr Leu
385 390 395 400

Gly Arg Val Thr Glu Cys Leu Ser Leu Asp Lys Leu Glu Ala Ala Pro
 405 410 415
 Ser Glu Ala Ala Leu Val Ser Arg Ala Leu Gln Leu Leu Ala Glu His
 420 425 430
 Arg Phe Trp Ala Gly Val Val Phe Leu Gly Pro Glu Asp Ser Ser Asp
 435 440 445
 Pro Thr Glu His Pro Thr Pro Asp Leu Gly Pro Gly His Val Arg Ile
 450 455 460
 Lys Ile Arg Met Asp Ile Asp Val Val Thr Arg Thr Asn Lys Ile Arg
 465 470 475 480
 Asp Arg Phe Trp Asp Pro Gly Pro Ala Ala Asp Pro Leu Thr Asp Leu
 485 490 495
 Arg Tyr Val Trp Gly Gly Phe Val Tyr Leu Gln Asp Leu Val Glu Arg
 500 505 510
 Ala Ala Val Arg Val Leu Ser Gly Ala Asn Pro Arg Ala Gly Leu Tyr
 515 520 525
 Leu Gln Gln Met Pro Tyr Pro Cys Tyr Val Asp Asp Val Phe Leu Arg
 530 535 540
 Val Leu Ser Arg Ser Leu Pro Leu Phe Leu Thr Leu Ala Trp Ile Tyr
 545 550 555 560
 Ser Val Thr Leu Thr Val Lys Ala Val Val Arg Glu Lys Glu Thr Arg
 565 570 575
 Leu Arg Asp Thr Met Arg Ala Met Gly Leu Ser Arg Ala Val Leu Trp
 580 585 590
 Leu Gly Trp Phe Leu Ser Cys Leu Gly Pro Phe Leu Leu Ser Ala Ala
 595 600 605
 Leu Leu Val Leu Val Leu Lys Leu Gly Asp Ile Leu Pro Tyr Ser His
 610 615 620
 Pro Gly Val Val Phe Leu Phe Leu Ala Ala Phe Ala Val Ala Thr Val
 625 630 635 640
 Thr Gln Ser Phe Leu Leu Ser Ala Phe Phe Ser Arg Ala Asn Leu Ala
 645 650 655
 Ala Ala Cys Gly Gly Leu Ala Tyr Phe Ser Leu Tyr Leu Pro Tyr Val
 660 665 670
 Leu Cys Val Ala Trp Arg Asp Arg Leu Pro Ala Gly Gly Arg Val Ala
 675 680 685
 Ala Ser Leu Leu Ser Pro Val Ala Phe Gly Phe Gly Cys Glu Ser Leu
 690 695 700

Ala Leu Leu Glu Glu Gln Gly Glu Gly Ala Gln Trp His Asn Val Gly
705 710 715 720

Thr Arg Pro Thr Ala Asp Val Phe Ser Leu Ala Gln Val Ser Gly Leu
725 730 735

Leu Leu Leu Asp Ala Ala Leu Tyr Gly Leu Ala Thr Trp Tyr Leu Glu
740 745 750

Ala Val Cys Pro Gly Gln Tyr Gly Ile Pro Glu Pro Trp Asn Phe Pro
755 760 765

Phe Arg Arg Ser Tyr Trp Cys Gly Pro Arg Pro Pro Lys Ser Pro Ala
770 775 780

Pro Cys Pro Thr Pro Leu Asp Pro Lys Val Leu Val Glu Glu Ala Pro
785 790 795 800

Pro Gly Leu Ser Pro Gly Val Ser Val Arg Ser Leu Glu Lys Arg Phe
805 810 815

Pro Gly Ser Pro Gln Pro Ala Leu Arg Gly Leu Ser Leu Asp Phe Tyr
820 825 830

Gln Gly His Ile Thr Ala Phe Leu Gly His Asn Gly Ala Gly Lys Thr
835 840 845

Thr Thr Leu Ser Ile Leu Ser Gly Leu Phe Pro Pro Ser Gly Gly Ser
850 855 860

Ala Phe Ile Leu Gly His Asp Val Arg Ser Ser Met Ala Ala Ile Arg
865 870 875 880

Pro His Leu Gly Val Cys Pro Gln Tyr Asn Val Leu Phe Asp Met Leu
885 890 895

Thr Val Asp Glu His Val Trp Phe Tyr Gly Arg Leu Lys Gly Leu Ser
900 905 910

Ala Ala Val Val Gly Pro Glu Gln Asp Arg Leu Leu Gln Asp Val Gly
915 920 925

Leu Val Ser Lys Gln Ser Val Gln Thr Arg His Leu Ser Gly Gly Met
930 935 940

Gln Arg Lys Leu Ser Val Ala Ile Ala Phe Val Gly Gly Ser Gln Val
945 950 955 960

Val Ile Leu Asp Glu Pro Thr Ala Gly Val Asp Pro Ala Ser Arg Arg
965 970 975

Gly Ile Trp Glu Leu Leu Lys Tyr Arg Glu Gly Arg Thr Leu Ile
980 985 990

Leu Ser Thr His His Leu Asp Glu Ala Glu Leu Leu Gly Asp Arg Val
995 1000 1005

Ala Val Val Ala Gly Gly Arg Leu Cys Cys Cys Gly Ser Pro Leu Phe
1010 1015 1020

Leu Arg Arg His Leu Gly Ser Gly Tyr Tyr Leu Thr Leu Val Lys Ala
1025 1030 1035 1040

Arg Leu Pro Leu Thr Thr Asn Glu Lys Ala Asp Thr Asp Met Glu Gly
1045 1050 1055

Ser Val Asp Thr Arg Gln Glu Lys Lys Asn Gly Ser Gln Gly Ser Arg
1060 1065 1070

Val Gly Thr Pro Gln Leu Leu Ala Leu Val Gln His Trp Val Pro Gly
1075 1080 1085

Ala Arg Leu Val Glu Glu Leu Pro His Glu Leu Val Leu Val Leu Pro
1090 1095 1100

Tyr Thr Gly Ala His Asp Gly Ser Phe Ala Thr Leu Phe Arg Glu Leu
1105 1110 1115 1120

Asp Thr Arg Leu Ala Glu Leu Arg Leu Thr Gly Tyr Gly Ile Ser Asp
1125 1130 1135

Thr Ser Leu Glu Glu Ile Phe Leu Lys Val Val Glu Glu Cys Ala Ala
1140 1145 1150

Asp Thr Asp Met Glu Asp Gly Ser Cys Gly Gln His Leu Cys Thr Gly
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Ile Ala Gly Leu Asp Val Thr Leu Arg Leu Lys Met Pro Pro Gln Glu
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Thr Ala Leu Glu Asn Gly Glu Pro Ala Gly Ser Ala Pro Glu Thr Asp
1185 1190 1195 1200

Gln Gly Ser Gly Pro Asp Ala Val Gly Arg Val Gln Gly Trp Ala Leu
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Thr Arg Gln Gln Leu Gln Ala Leu Leu Lys Arg Phe Leu Leu Ala
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Arg Arg Ser Arg Arg Gly Leu Phe Ala Gln Ile Val Leu Pro Ala Leu
1235 1240 1245

Phe Val Gly Leu Ala Leu Val Phe Ser Leu Ile Val Pro Pro Phe Gly
1250 1255 1260

His Tyr Pro Ala Leu Arg Leu Ser Pro Thr Met Tyr Gly Ala Gln Val
1265 1270 1275 1280

Ser Phe Phe Ser Glu Asp Ala Pro Gly Asp Pro Gly Arg Ala Arg Leu
1285 1290 1295

Leu Glu Ala Leu Leu Gln Glu Ala Gly Leu Glu Glu Pro Pro Val Gln
1300 1305 1310

His Ser Ser His Arg Phe Ser Ala Pro Glu Val Pro Ala Glu Val Ala
1315 1320 1325

Lys Val Leu Ala Ser Gly Asn Trp Thr Pro Glu Ser Pro Ser Pro Ala
1330 1335 1340

Cys Gln Cys Ser Gln Pro Gly Ala Arg Arg Leu Leu Pro Asp Cys Pro
1345 1350 1355 1360

Ala Ala Ala Gly Gly Pro Pro Pro Gln Ala Val Thr Gly Ser Gly
1365 1370 1375

Glu Val Val Gln Asn Leu Thr Gly Arg Asn Leu Ser Asp Phe Leu Val
1380 1385 1390

Lys Thr Tyr Pro Arg Leu Val Arg Gln Gly Leu Lys Thr Lys Lys Trp
1395 1400 1405

Val Asn Glu Val Arg Tyr Gly Gly Phe Ser Leu Gly Arg Asp Pro
1410 1415 1420

Gly Leu Pro Ser Gly Gln Glu Leu Gly Arg Ser Val Glu Glu Leu Trp
1425 1430 1435 1440

Ala Leu Leu Ser Pro Leu Pro Gly Gly Ala Leu Asp Arg Val Leu Lys
1445 1450 1455

Asn Leu Thr Ala Trp Ala His Ser Leu Asp Ala Gln Asp Ser Leu Lys
1460 1465 1470

Ile Trp Phe Asn Asn Lys Gly Trp His Ser Met Val Ala Phe Val Asn
1475 1480 1485

Arg Ala Ser Asn Ala Ile Leu Arg Ala His Leu Pro Pro Gly Pro Ala
1490 1495 1500

Arg His Ala His Ser Ile Thr Thr Leu Asn His Pro Leu Asn Leu Thr
1505 1510 1515 1520

Lys Glu Gln Leu Ser Glu Ala Ala Leu Met Ala Ser Ser Val Asp Val
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Leu Val Ser Ile Cys Val Val Phe Ala Met Ser Phe Val Pro Ala Ser
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Phe Thr Leu Val Leu Ile Glu Glu Arg Val Thr Arg Ala Lys His Leu
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Gln Leu Met Gly Gly Leu Ser Pro Thr Leu Tyr Trp Leu Gly Asn Phe
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Leu Trp Asp Met Cys Asn Tyr Leu Val Pro Ala Cys Ile Val Val Leu
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Ile Phe Leu Ala Phe Gln Gln Arg Ala Tyr Val Ala Pro Ala Asn Leu
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Pro Ala Leu Leu Leu Leu Leu Leu Tyr Gly Trp Ser Ile Thr Pro
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Val Val Leu Thr Cys Ile Asn Leu Phe Ile Gly Ile Asn Gly Ser Met
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Ala Thr Phe Val Leu Glu Leu Phe Ser Asp Gln Lys Leu Gln Glu Val
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Ser Arg Ile Leu Lys Gln Val Phe Leu Ile Phe Pro His Phe Cys Leu
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Val Val Gly Lys Asn Leu Leu Ala Met Val Ile Gln Gly Pro Leu Phe
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Leu Leu Phe Thr Leu Leu Leu Gln His Arg Ser Gln Leu Leu Pro Gln
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Pro Arg Val Arg Ser Leu Pro Leu Leu Gly Glu Glu Asp Glu Asp Val
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Ala Arg Glu Arg Glu Arg Val Val Gln Gly Ala Thr Gln Gly Asp Val
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Leu Val Leu Arg Asn Leu Thr Lys Val Tyr Arg Gly Gln Arg Met Pro
1795 1800 1805

Ala Val Asp Arg Leu Cys Leu Gly Ile Pro Pro Gly Glu Cys Phe Gly
1810 1815 1820

Leu Leu Gly Val Asn Gly Ala Gly Lys Thr Ser Thr Phe Arg Met Val
1825 1830 1835 1840

Thr Gly Asp Thr Leu Ala Ser Arg Gly Glu Ala Val Leu Ala Gly His
1845 1850 1855

Ser Val Ala Arg Glu Pro Ser Ala Ala His Leu Ser Met Gly Tyr Cys
1860 1865 1870

Pro Gln Ser Asp Ala Ile Phe Glu Leu Leu Thr Gly Arg Glu His Leu
1875 1880 1885

Glu Leu Leu Ala Arg Leu Arg Gly Val Pro Glu Ala Gln Val Ala Gln
1890 1895 1900

Thr Ala Gly Ser Gly Leu Ala Arg Leu Gly Leu Ser Trp Tyr Ala Asp
1905 1910 1915 1920

Arg Pro Ala Gly Thr Tyr Ser Gly Gly Asn Lys Arg Lys Leu Ala Thr
 1925 1930 1935
 Ala Leu Ala Leu Val Gly Asp Pro Ala Val Val Phe Leu Asp Glu Pro
 1940 1945 1950
 Thr Thr Gly Met Asp Pro Ser Ala Arg Arg Phe Leu Trp Asn Ser Leu
 1955 1960 1965
 Leu Ala Val Val Arg Glu Gly Arg Ser Val Met Leu Thr Ser His Ser
 1970 1975 1980
 Met Glu Glu Cys Glu Ala Leu Cys Ser Arg Leu Ala Ile Met Val Asn
 1985 1990 1995 2000
 Gly Arg Phe Arg Cys Leu Gly Ser Pro Gln His Leu Lys Gly Arg Phe
 2005 2010 2015
 Ala Ala Gly His Thr Leu Thr Leu Arg Val Pro Ala Ala Arg Ser Gln
 2020 2025 2030
 Pro Ala Ala Ala Phe Val Ala Ala Glu Phe Pro Gly Ser Glu Leu Arg
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 Glu Ala His Gly Gly Arg Leu Arg Phe Gln Leu Pro Pro Gly Gly Arg
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 Cys Ala Leu Ala Arg Val Phe Gly Glu Leu Ala Val His Gly Ala Glu
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 Phe Leu Tyr Phe Ser Lys Asp Gln Gly Lys Asp Glu Asp Thr Glu Glu
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Ser Asn Phe Asn Asp Ser Leu Val Ser Arg Leu Leu Ala Asp Ala Arg
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Thr Val Leu Gly Gly Ala Ser Ala His Arg Thr Leu Ala Gly Leu Gly
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Lys Leu Ile Ala Thr Leu Arg Ala Ala Arg Ser Thr Ala Gln Pro Gln
 85 90 95

Pro Thr Lys Gln Ser Pro Leu Glu Pro Pro Met Leu Asp Val Ala Glu
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Leu Leu Thr Ser Leu Leu Arg Thr Glu Ser Leu Gly Leu Ala Leu Gly
 115 120 125

Gln Ala Gln Glu Pro Leu His Ser Leu Leu Glu Ala Ala Glu Asp Leu
 130 135 140

Ala Gln Glu Leu Leu Ala Leu Arg Ser Leu Val Glu Leu Arg Ala Leu
 145 150 155 160

Leu Gln Arg Pro Arg Gly Thr Ser Gly Pro Leu Glu Leu Leu Ser Glu
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Ala Leu Cys Ser Val Arg Gly Pro Ser Ser Thr Val Gly Pro Ser Leu
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Asn Trp Tyr Glu Ala Ser Asp Leu Met Glu Leu Val Gly Gln Glu Pro
 195 200 205

Glu Ser Ala Leu Pro Asp Ser Ser Leu Ser Pro Ala Cys Ser Glu Leu
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Ile Gly Ala Leu Asp Ser His Pro Leu Ser Arg Leu Leu Trp Arg Arg
 225 230 235 240

Leu Lys Pro Leu Ile Leu Gly Lys Leu Leu Phe Ala Pro Asp Thr Pro
 245 250 255

Phe Thr Arg Lys Leu Met Ala Gln Val Asn Arg Thr Phe Glu Glu Leu
 260 265 270

Thr Leu Leu Arg Asp Val Arg Glu Val Trp Glu Met Leu Gly Pro Arg
 275 280 285

Ile Phe Thr Phe Met Asn Asp Ser Ser Asn Val Ala Met Leu Gln Arg
 290 295 300

Leu Leu Gln Met Gln Asp Glu Gly Arg Arg Gln Pro Arg Pro Gly Gly
 305 310 315 320

Arg Asp His Met Glu Ala Leu Arg Ser Phe Leu Asp Pro Gly Ser Gly
 325 330 335

Gly Tyr Ser Trp Gln Asp Ala His Ala Asp Val Gly His Leu Val Gly
340 345 350

Thr Leu Gly Arg Val Thr Glu Cys Leu Ser Leu Asp Lys Leu Glu Ala
355 360 365

Ala Pro Ser Glu Ala Ala Leu Val Ser Arg Ala Leu Gln Leu Leu Ala
370 375 380

Glu His Arg Phe Trp Ala Gly Val Val Phe Leu Gly Pro Glu Asp Ser
385 390 395 400

Ser Asp Pro Thr Glu His Pro Thr Pro Asp Leu Gly Pro Gly His Val
405 410 415

Arg Ile Lys Ile Arg Met Asp Ile Asp Val Val Thr Arg Thr Asn Lys
420 425 430

Ile Arg Asp Arg Phe Trp Asp Pro Gly Pro Ala Ala Asp Pro Leu Thr
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Cys Ser Glu Leu Ile Gly Ala Leu Asp Ser His Pro Leu Ser Arg Leu
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768

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ctg tct gac ttc ctg gtc aag acc tac ccg cgc ctg gtg cgc cag ggc Leu Ser Asp Phe Leu Val Lys Thr Tyr Pro Arg Leu Val Arg Gln Gly 1250	1255	1260	3792
ctg aag act aag aag tgg gtg aat gag gtc agg tac gga ggc ttc tcg Leu Lys Thr Lys Lys Trp Val Asn Glu Val Arg Tyr Gly Gly Phe Ser 1265	1270	1275	3840
ctg ggg ggc cga gac cca ggc ctg ccc tcg ggc caa gag ttg ggc cgc Leu Gly Gly Arg Asp Pro Gly Leu Pro Ser Gly Gln Glu Leu Gly Arg 1285	1290	1295	3888
tca gtg gag gag ttg tgg gcg ctg ctg agt ccc ctg cct ggc ggg gcc Ser Val Glu Glu Leu Trp Ala Leu Leu Ser Pro Leu Pro Gly Gly Ala 1300	1305	1310	3936
ctc gac cgt gtc ctg aaa aac ctc aca gcc tgg gct cac agc ctg gat Leu Asp Arg Val Leu Lys Asn Leu Thr Ala Trp Ala His Ser Leu Asp 1315	1320	1325	3984
gct cag gac agt ctc aag atc tgg ttc aac aac aaa ggc tgg cac tcc Ala Gln Asp Ser Leu Lys Ile Trp Phe Asn Asn Lys Gly Trp His Ser 1330	1335	1340	4032
atg gtg gcc ttt gtc aac cga gcc agc aac gca atc ctc cgt gct cac Met Val Ala Phe Val Asn Arg Ala Ser Asn Ala Ile Leu Arg Ala His 1345	1350	1355	4080

ctg ccc cca ggc ccg gcc cgc cac gcc cac agc atc acc aca ctc aac Leu Pro Pro Gly Pro Ala Arg His Ala His Ser Ile Thr Thr Leu Asn 1365 1370 1375	4128
cac ccc ttg aac ctc acc aag gag cag ctg tct gag gct gca ctg atg His Pro Leu Asn Leu Thr Lys Glu Gln Leu Ser Glu Ala Ala Leu Met 1380 1385 1390	4176
gcc tcc tcg gtg gac gtc ctc gtc tcc atc tgt gtg gtc ttt gcc atg Ala Ser Ser Val Asp Val Leu Val Ser Ile Cys Val Val Phe Ala Met 1395 1400 1405	4224
tcc ttt gtc ccg gcc agc ttc act ctt gtc ctc att gag gag cga gtc Ser Phe Val Pro Ala Ser Phe Thr Leu Val Leu Ile Glu Glu Arg Val 1410 1415 1420	4272
acc cga gcc aag cac ctg cag ctc atg ggg ggc ctg tcc ccc acc ctc Thr Arg Ala Lys His Leu Gln Leu Met Gly Gly Leu Ser Pro Thr Leu 1425 1430 1435 1440	4320
tac tgg ctt ggc aac ttt ctc tgg gac atg tgt aac tac ttg gtg cca Tyr Trp Leu Gly Asn Phe Leu Trp Asp Met Cys Asn Tyr Leu Val Pro 1445 1450 1455	4368
gca tgc atc gtg gtg ctc atc ttt ctg gcc ttc cag cag agg gca tat Ala Cys Ile Val Val Leu Ile Phe Leu Ala Phe Gln Gln Arg Ala Tyr 1460 1465 1470	4416
gtg gcc cct gcc aac ctg cct gct ctc ctg ctg ttg cta cta ctg tat Val Ala Pro Ala Asn Leu Pro Ala Leu Leu Leu Leu Leu Tyr 1475 1480 1485	4464
ggg aga cag gca gtt cca gtc acc cct gcg ctg gga ggt ggt cgg caa Gly Arg Gln Ala Val Pro Val Thr Pro Ala Leu Gly Gly Arg Gln 1490 1495 1500	4512
gaa cct ctt ggc cat ggt gat aca ggg gcc cct ctt cct tct ctt cac Glu Pro Leu Gly His Gly Asp Thr Gly Ala Pro Leu Pro Ser Leu His 1505 1510 1515 1520	4560
act act gct gca gca ccg aag cca act cct gcc aca gcc cag ggt gag Thr Thr Ala Ala Pro Lys Pro Thr Pro Ala Thr Ala Gln Gly Glu 1525 1530 1535	4608
gtc tct gcc act cct ggg aga gga gga cga gga tgt agc ccg tga Val Ser Ala Thr Pro Gly Arg Gly Arg Gly Cys Ser Pro 1540 1545 1550	4653

<210> 8
 <211> 1550
 <212> PRT
 <213> Homo sapiens

<400> 8
 Met Val Cys Leu Gly Thr Gly Gln Ser Ala Gly Pro Leu Val Ser Val

1

5

10

15

Gln Asn His Cys Pro Pro Cys Gly Leu Ser Pro Gln Glu Ser Leu Gly
20 25 30

Leu Ala Leu Gly Gln Ala Gln Glu Pro Leu His Ser Leu Leu Glu Ala
35 40 45

Ala Gly Asp Leu Ala Gln Glu Leu Leu Ala Leu Arg Ser Leu Val Glu
50 55 60

Leu Arg Ala Leu Leu Gln Arg Pro Arg Gly Thr Ser Gly Pro Leu Glu
65 70 75 80

Leu Leu Ser Glu Ala Leu Cys Ser Val Arg Gly Pro Ser Ser Thr Val
85 90 95

Gly Pro Ser Leu Asn Trp Tyr Glu Ala Ser Asp Leu Met Glu Leu Val
100 105 110

Gly Gln Glu Pro Glu Ser Ala Leu Pro Asp Ser Ser Leu Ser Pro Ala
115 120 125

Cys Ser Glu Leu Ile Gly Ala Leu Asp Ser His Pro Leu Ser Arg Leu
130 135 140

Leu Trp Arg Arg Leu Lys Pro Leu Ile Leu Gly Lys Leu Leu Phe Ala
145 150 155 160

Pro Asp Thr Pro Phe Thr Arg Lys Leu Met Ala Gln Val Asn Arg Thr
165 170 175

Phe Glu Glu Leu Thr Leu Leu Arg Asp Val Arg Glu Val Trp Glu Met
180 185 190

Leu Gly Pro Arg Ile Phe Thr Phe Met Asn Asp Ser Ser Asn Val Ala
195 200 205

Met Leu Gln Arg Leu Leu Gln Met Gln Asp Glu Gly Arg Arg Gln Pro
210 215 220

Arg Pro Gly Gly Arg Asp His Met Glu Ala Leu Arg Ser Phe Leu Asp
225 230 235 240

Pro Gly Ser Gly Gly Tyr Ser Trp Gln Asp Ala His Ala Asp Val Gly
245 250 255

His Leu Val Gly Thr Leu Gly Arg Val Thr Glu Cys Leu Ser Leu Asp
260 265 270

Lys Leu Glu Ala Ala Pro Ser Glu Ala Ala Leu Val Ser Arg Ala Leu
275 280 285

Gln Leu Leu Ala Glu His Arg Phe Trp Ala Gly Val Val Phe Leu Gly
290 295 300

Pro Glu Asp Ser Ser Asp Pro Thr Glu His Pro Thr Pro Asp Leu Gly

305	310	315	320
Pro Gly His Val Arg Ile Lys Ile Arg Met Asp Ile Asp Val Val Thr			
325	330	335	
Arg Thr Asn Lys Ile Arg Asp Arg Phe Trp Asp Pro Gly Pro Ala Ala			
340	345	350	
Asp Pro Leu Thr Asp Leu Arg Tyr Val Trp Gly Gly Phe Val Tyr Leu			
355	360	365	
Gln Asp Leu Val Glu Arg Ala Ala Val Arg Val Leu Ser Gly Ala Asn			
370	375	380	
Pro Arg Ala Gly Leu Tyr Leu Gln Gln Met Pro Tyr Pro Cys Tyr Val			
385	390	395	400
Asp Asp Val Phe Leu Arg Val Leu Ser Arg Ser Leu Pro Leu Phe Leu			
405	410	415	
Thr Leu Ala Trp Ile Tyr Ser Val Thr Leu Thr Val Lys Ala Val Val			
420	425	430	
Arg Glu Lys Glu Thr Arg Leu Arg Asp Thr Met Arg Ala Met Gly Leu			
435	440	445	
Ser Arg Ala Val Leu Trp Leu Gly Trp Phe Leu Ser Cys Leu Gly Pro			
450	455	460	
Phe Leu Leu Ser Ala Ala Leu Leu Val Leu Val Leu Lys Leu Gly Asp			
465	470	475	480
Ile Leu Pro Tyr Ser His Pro Gly Val Val Phe Leu Phe Leu Ala Ala			
485	490	495	
Phe Ala Val Ala Thr Val Thr Gln Ser Phe Leu Leu Ser Ala Phe Phe			
500	505	510	
Ser Arg Ala Asn Leu Ala Ala Cys Gly Gly Leu Ala Tyr Phe Ser			
515	520	525	
Leu Tyr Leu Pro Tyr Val Leu Cys Val Ala Trp Arg Asp Arg Leu Pro			
530	535	540	
Ala Gly Gly Arg Val Ala Ala Ser Leu Leu Ser Pro Val Ala Phe Gly			
545	550	555	560
Phe Gly Cys Glu Ser Leu Ala Leu Leu Glu Glu Gln Gly Glu Gly Ala			
565	570	575	
Gln Trp His Asn Val Gly Thr Arg Pro Thr Ala Asp Val Phe Ser Leu			
580	585	590	
Ala Gln Val Ser Gly Leu Leu Leu Asp Ala Ala Leu Tyr Gly Leu			
595	600	605	
Ala Thr Trp Tyr Leu Glu Ala Val Cys Pro Gly Gln Tyr Gly Ile Pro			

610

615

620

Glu Pro Trp Asn Phe Pro Phe Arg Arg Ser Tyr Trp Cys Gly Pro Arg
 625 630 635 640

Pro Pro Lys Ser Pro Ala Pro Cys Pro Thr Pro Leu Asp Pro Lys Val
 645 650 655

Leu Val Glu Ala Pro Pro Gly Leu Ser Pro Gly Val Ser Val Arg
 660 665 670

Ser Leu Glu Lys Arg Phe Pro Gly Ser Pro Gln Pro Ala Leu Arg Gly
 675 680 685

Leu Ser Leu Asp Phe Tyr Gln Gly His Ile Thr Ala Phe Leu Gly His
 690 695 700

Asn Gly Ala Gly Lys Thr Thr Thr Leu Ser Ile Leu Ser Gly Leu Phe
 705 710 715 720

Pro Pro Ser Gly Gly Ser Ala Phe Ile Leu Gly His Asp Val Arg Ser
 725 730 735

Ser Met Ala Ala Ile Arg Pro His Leu Gly Val Cys Pro Gln Tyr Asn
 740 745 750

Val Leu Phe Asp Met Leu Thr Val Asp Glu His Val Trp Phe Tyr Gly
 755 760 765

Arg Leu Lys Gly Leu Ser Ala Ala Val Val Gly Pro Glu Gln Asp Arg
 770 775 780

Leu Leu Gln Asp Val Gly Leu Val Ser Lys Gln Ser Val Gln Thr Arg
 785 790 795 800

His Leu Ser Gly Gly Met Gln Arg Lys Leu Ser Val Ala Ile Ala Phe
 805 810 815

Val Gly Gly Ser Gln Val Val Ile Leu Asp Glu Pro Thr Ala Gly Val
 820 825 830

Asp Pro Ala Ser Arg Arg Gly Ile Trp Glu Leu Leu Lys Tyr Arg
 835 840 845

Glu Gly Arg Thr Leu Ile Leu Ser Thr His His Leu Asp Glu Ala Glu
 850 855 860

Leu Leu Gly Asp Arg Val Ala Val Val Ala Gly Gly Arg Leu Cys Cys
 865 870 875 880

Cys Gly Ser Pro Leu Phe Leu Arg Arg His Leu Gly Ser Gly Tyr Tyr
 885 890 895

Leu Thr Leu Val Lys Ala Arg Leu Pro Leu Thr Thr Asn Glu Lys Ala
 900 905 910

Asp Thr Asp Met Glu Gly Ser Val Asp Thr Arg Gln Glu Lys Lys Asn

915	920	925
Gly Ser Gln Gly Ser Arg Val Gly Thr Pro Gln Leu Leu Ala Leu Val		
930	935	940
Gln His Trp Val Pro Gly Ala Arg Leu Val Glu Glu Leu Pro His Glu		
945	950	955
Leu Val Leu Val Leu Pro Tyr Thr Gly Ala His Asp Gly Ser Phe Ala		
965	970	975
Thr Leu Phe Arg Glu Leu Asp Thr Arg Leu Ala Glu Leu Arg Leu Thr		
980	985	990
Gly Tyr Gly Ile Ser Asp Thr Ser Leu Glu Glu Ile Phe Leu Lys Val		
995	1000	1005
Val Glu Glu Cys Ala Ala Asp Thr Asp Met Glu Asp Gly Ser Cys Gly		
1010	1015	1020
Gln His Leu Cys Thr Gly Ile Ala Gly Leu Asp Val Thr Leu Arg Leu		
1025	1030	1035
1040		
Lys Met Pro Pro Gln Glu Thr Ala Leu Glu Asn Gly Glu Pro Ala Gly		
1045	1050	1055
Ser Ala Pro Glu Thr Asp Gln Gly Ser Gly Pro Asp Ala Val Gly Arg		
1060	1065	1070
Val Gln Gly Trp Ala Leu Thr Arg Gln Gln Leu Gln Ala Leu Leu Leu		
1075	1080	1085
Lys Arg Phe Leu Leu Ala Arg Arg Ser Arg Arg Gly Leu Phe Ala Gln		
1090	1095	1100
Ile Val Leu Pro Ala Leu Phe Val Gly Leu Ala Leu Val Phe Ser Leu		
1105	1110	1115
1120		
Ile Val Pro Pro Phe Gly His Tyr Pro Ala Leu Arg Leu Ser Pro Thr		
1125	1130	1135
Met Tyr Gly Ala Gln Val Ser Phe Phe Ser Glu Asp Ala Pro Gly Asp		
1140	1145	1150
Pro Gly Arg Ala Arg Leu Leu Glu Ala Leu Leu Gln Glu Ala Gly Leu		
1155	1160	1165
Glu Glu Pro Pro Val Gln His Ser Ser His Arg Phe Ser Ala Pro Glu		
1170	1175	1180
Val Pro Ala Glu Val Ala Lys Val Leu Ala Ser Gly Asn Trp Thr Pro		
1185	1190	1195
1200		
Glu Ser Pro Ser Pro Ala Cys Gln Cys Ser Gln Pro Gly Ala Arg Arg		
1205	1210	1215
Leu Leu Pro Asp Cys Pro Ala Ala Gly Gly Pro Pro Pro Pro Gln		

1220	1225	1230
Ala Val Thr Gly Ser Gly Glu Val Val Gln Asn Leu Thr Gly Arg Asn		
1235	1240	1245
Leu Ser Asp Phe Leu Val Lys Thr Tyr Pro Arg Leu Val Arg Gln Gly		
1250	1255	1260
Leu Lys Thr Lys Lys Trp Val Asn Glu Val Arg Tyr Gly Gly Phe Ser		
1265	1270	1275
Leu Gly Gly Arg Asp Pro Gly Leu Pro Ser Gly Gln Glu Leu Gly Arg		
1285	1290	1295
Ser Val Glu Glu Leu Trp Ala Leu Leu Ser Pro Leu Pro Gly Gly Ala		
1300	1305	1310
Leu Asp Arg Val Leu Lys Asn Leu Thr Ala Trp Ala His Ser Leu Asp		
1315	1320	1325
Ala Gln Asp Ser Leu Lys Ile Trp Phe Asn Asn Lys Gly Trp His Ser		
1330	1335	1340
Met Val Ala Phe Val Asn Arg Ala Ser Asn Ala Ile Leu Arg Ala His		
1345	1350	1355
1360		
Leu Pro Pro Gly Pro Ala Arg His Ala His Ser Ile Thr Thr Leu Asn		
1365	1370	1375
His Pro Leu Asn Leu Thr Lys Glu Gln Leu Ser Glu Ala Ala Leu Met		
1380	1385	1390
Ala Ser Ser Val Asp Val Leu Val Ser Ile Cys Val Val Phe Ala Met		
1395	1400	1405
Ser Phe Val Pro Ala Ser Phe Thr Leu Val Leu Ile Glu Glu Arg Val		
1410	1415	1420
Thr Arg Ala Lys His Leu Gln Leu Met Gly Gly Leu Ser Pro Thr Leu		
1425	1430	1435
1440		
Tyr Trp Leu Gly Asn Phe Leu Trp Asp Met Cys Asn Tyr Leu Val Pro		
1445	1450	1455
Ala Cys Ile Val Val Leu Ile Phe Leu Ala Phe Gln Gln Arg Ala Tyr		
1460	1465	1470
Val Ala Pro Ala Asn Leu Pro Ala Leu Leu Leu Leu Leu Tyr		
1475	1480	1485
Gly Arg Gln Ala Val Pro Val Thr Pro Ala Leu Gly Gly Arg Gln		
1490	1495	1500
Glu Pro Leu Gly His Gly Asp Thr Gly Ala Pro Leu Pro Ser Leu His		
1505	1510	1515
1520		
Thr Thr Ala Ala Ala Pro Lys Pro Thr Pro Ala Thr Ala Gln Gly Glu		

1525

1530

1535

Val Ser Ala Thr Pro Gly Arg Gly Gly Arg Gly Cys Ser Pro
 1540 1545 1550

<210> 9
 <211> 2201
 <212> PRT
 <213> Mus musculus

<220>
 <221> UNSURE
 <222> (115)
 <223> amino acid at this position is unknown

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 Met Pro Ser Ala Gly Thr Leu Pro Trp Val Gln Gly Ile Ile Cys Asn
 1 5 10 15

Ala Asn Asn Pro Cys Phe Arg Tyr Pro Thr Pro Gly Glu Ala Pro Gly
 20 25 30

Val Val Gly Asn Phe Asn Lys Ser Ile Val Ser Arg Leu Phe Ser Asp
 35 40 45

Ala Gln Arg Leu Leu Leu Tyr Ser Gln Arg Asp Thr Ser Ile Lys Asp
 50 55 60

Met His Lys Val Leu Arg Met Leu Arg Gln Ile Lys His Pro Asn Ser
 65 70 75 80

Asn Leu Lys Leu Gln Asp Phe Leu Val Asp Asn Glu Thr Phe Ser Gly
 85 90 95

Phe Leu Gln His Asn Leu Ser Leu Pro Arg Ser Thr Val Asp Ser Leu
 100 105 110

Leu Gln Xaa Asn Val Gly Leu Gln Lys Val Phe Leu Gln Gly Tyr Gln
 115 120 125

Leu His Leu Ala Ser Leu Cys Asn Gly Ser Lys Leu Glu Glu Ile Ile
 130 135 140

Gln Leu Gly Asp Ala Glu Val Ser Ala Leu Cys Gly Leu Pro Arg Lys
 145 150 155 160

Lys Leu Asp Ala Ala Glu Arg Val Leu Arg Tyr Asn Met Asp Ile Leu
 165 170 175

Lys Pro Val Val Thr Lys Leu Asn Ser Thr Ser His Leu Pro Thr Gln
 180 185 190

His Leu Ala Glu Ala Thr Thr Val Leu Leu Asp Ser Leu Gly Gly Leu
 195 200 205

Ala Gln Glu Leu Phe Ser Thr Lys Ser Trp Ser Asp Met Arg Gln Glu

210

215

220

Val Met Phe Leu Thr Asn Val Asn Ser Ser Ser Ser Thr Gln Ile
 225 230 235 240

Tyr Gln Ala Val Ser Arg Ile Val Cys Gly His Pro Glu Gly Gly
 245 250 255

Leu Lys Ile Lys Ser Leu Asn Trp Tyr Glu Asp Asn Asn Tyr Lys Ala
 260 265 270

Leu Phe Gly Gly Asn Asn Thr Glu Glu Asp Val Asp Thr Phe Tyr Asp
 275 280 285

Asn Ser Thr Thr Pro Tyr Cys Asn Asp Leu Met Lys Asn Leu Glu Ser
 290 295 300

Ser Pro Leu Ser Arg Ile Ile Trp Lys Ala Leu Lys Pro Leu Leu Val
 305 310 315 320

Gly Lys Ile Leu Tyr Thr Pro Asp Thr Pro Ala Thr Arg Gln Val Met
 325 330 335

Ala Glu Val Asn Lys Thr Phe Gln Glu Leu Ala Val Phe His Asp Leu
 340 345 350

Glu Gly Met Trp Glu Glu Leu Ser Pro Gln Ile Trp Thr Phe Met Glu
 355 360 365

Asn Ser Gln Glu Met Asp Leu Val Arg Thr Leu Leu Asp Ser Arg Gly
 370 375 380

Asn Asp Gln Phe Trp Glu Gln Lys Leu Asp Gly Leu Asp Trp Thr Ala
 385 390 395 400

Gln Asp Ile Met Ala Phe Leu Ala Lys Asn Pro Glu Asp Val Gln Ser
 405 410 415

Pro Asn Gly Ser Val Tyr Thr Trp Arg Glu Ala Phe Asn Glu Thr Asn
 420 425 430

Gln Ala Ile Gln Thr Ile Ser Arg Phe Met Glu Cys Val Asn Leu Asn
 435 440 445

Lys Leu Glu Pro Ile Pro Thr Glu Val Arg Leu Ile Asn Lys Ser Met
 450 455 460

Glu Leu Leu Asp Glu Arg Lys Phe Trp Ala Gly Ile Val Phe Thr Gly
 465 470 475 480

Ile Thr Pro Asp Ser Val Glu Leu Pro His His Val Lys Tyr Lys Ile
 485 490 495

Arg Met Asp Ile Asp Asn Val Glu Arg Thr Asn Lys Ile Lys Asp Gly
 500 505 510

Tyr Trp Asp Pro Gly Pro Arg Ala Asp Pro Phe Glu Asp Met Arg Tyr

515	520	525	
Val Trp Gly Gly Phe Ala Tyr Leu Gln Asp Val Val Glu Gln Ala Ile			
530	535	540	
Ile Arg Val Leu Thr Gly Ser Glu Lys Lys Thr Gly Val Tyr Val Gln			
545	550	555	560
Gln Met Pro Tyr Pro Cys Tyr Val Asp Asp Ile Phe Leu Arg Val Met			
565	570	575	
Ser Arg Ser Met Pro Leu Phe Met Thr Leu Ala Trp Ile Tyr Ser Val			
580	585	590	
Ala Val Ile Ile Lys Ser Ile Val Tyr Glu Lys Glu Ala Arg Leu Lys			
595	600	605	
Glu Thr Met Arg Ile Met Gly Leu Asp Asn Gly Ile Leu Trp Phe Ser			
610	615	620	
Trp Phe Val Ser Ser Leu Ile Pro Leu Leu Val Ser Ala Gly Leu Leu			
625	630	635	640
Val Val Ile Leu Lys Leu Gly Asn Leu Leu Pro Tyr Ser Asp Pro Ser			
645	650	655	
Val Val Phe Val Phe Leu Ser Val Phe Ala Met Val Thr Ile Leu Gln			
660	665	670	
Cys Phe Leu Ile Ser Thr Leu Phe Ser Arg Ala Asn Leu Ala Ala Ala			
675	680	685	
Cys Gly Gly Ile Ile Tyr Phe Thr Leu Tyr Leu Pro Tyr Val Leu Cys			
690	695	700	
Val Ala Trp Gln Asp Tyr Val Gly Phe Ser Ile Lys Ile Phe Ala Ser			
705	710	715	720
Leu Leu Ser Pro Val Ala Phe Gly Phe Gly Cys Glu Tyr Phe Ala Leu			
725	730	735	
Phe Glu Glu Gln Gly Ile Gly Val Gln Trp Asp Asn Leu Phe Glu Ser			
740	745	750	
Pro Val Glu Glu Asp Gly Phe Asn Leu Thr Thr Ala Val Ser Met Met			
755	760	765	
Leu Phe Asp Thr Phe Leu Tyr Gly Val Met Thr Trp Tyr Ile Glu Ala			
770	775	780	
Val Phe Pro Gly Gln Tyr Gly Ile Pro Arg Pro Trp Tyr Phe Pro Cys			
785	790	795	800
Thr Lys Ser Tyr Trp Phe Gly Glu Glu Ile Asp Glu Lys Ser His Pro			
805	810	815	
Gly Ser Ser Gln Lys Gly Val Ser Glu Ile Cys Met Glu Glu Glu Pro			

820 825 830

Thr His Leu Arg Leu Gly Val Ser Ile Gln Asn Leu Val Lys Val Tyr
835 840 845

Arg Asp Gly Met Lys Val Ala Val Asp Gly Leu Ala Leu Asn Phe Tyr
850 855 860

Glu Gly Gln Ile Thr Ser Phe Leu Gly His Asn Gly Ala Gly Lys Thr
865 870 875 880

Thr Thr Met Ser Ile Leu Thr Gly Leu Phe Pro Pro Thr Ser Gly Thr
885 890 895

Ala Tyr Ile Leu Gly Lys Asp Ile Arg Ser Glu Met Ser Ser Ile Arg
900 905 910

Gln Asn Leu Gly Val Cys Pro Gln His Asn Val Leu Phe Asp Met Leu
915 920 925

Thr Val Glu Glu His Ile Trp Phe Tyr Ala Arg Leu Lys Gly Leu Ser
930 935 940

Glu Lys His Val Lys Ala Glu Met Glu Gln Met Ala Leu Asp Val Gly
945 950 955 960

Leu Pro Pro Ser Lys Leu Lys Ser Lys Thr Ser Gln Leu Ser Gly Gly
965 970 975

Met Gln Arg Lys Leu Ser Val Ala Leu Ala Phe Val Gly Gly Ser Lys
980 985 990

Val Val Ile Leu Asp Glu Pro Thr Ala Gly Val Asp Pro Tyr Ser Arg
995 1000 1005

Arg Gly Ile Trp Glu Leu Leu Lys Tyr Arg Gln Gly Arg Thr Ile
1010 1015 1020

Ile Leu Ser Thr His His Met Asp Glu Ala Asp Ile Leu Gly Asp Arg
1025 1030 1035 1040

Ile Ala Ile Ile Ser His Gly Lys Leu Cys Cys Val Gly Ser Ser Leu
1045 1050 1055

Phe Leu Lys Asn Gln Leu Gly Thr Gly Tyr Tyr Leu Thr Leu Val Lys
1060 1065 1070

Lys Asp Val Glu Ser Ser Leu Ser Ser Cys Arg Asn Ser Ser Ser Thr
1075 1080 1085

Val Ser Cys Leu Lys Glu Asp Ser Val Ser Gln Ser Ser Ser Asp
1090 1095 1100

Ala Gly Leu Gly Ser Asp His Glu Ser Asp Thr Leu Thr Ile Asp Val
1105 1110 1115 1120

Ser Ala Ile Ser Asn Leu Ile Arg Lys His Val Ser Glu Ala Arg Leu

1125	1130	1135
Val Glu Asp Ile Gly His Glu Leu Thr Tyr Val Leu Pro Tyr Glu Ala		
1140	1145	1150
Ala Lys Glu Gly Ala Phe Val Glu Leu Phe His Glu Ile Asp Asp Arg		
1155	1160	1165
Leu Ser Asp Leu Gly Ile Ser Ser Tyr Gly Ile Ser Glu Thr Thr Leu		
1170	1175	1180
Glu Glu Ile Phe Leu Lys Val Ala Glu Glu Ser Gly Val Asp Ala Glu		
1185	1190	1195
Thr Ser Asp Gly Thr Leu Pro Ala Arg Arg Asn Arg Arg Ala Phe Gly		
1205	1210	1215
Asp Lys Gln Ser Cys Leu His Pro Phe Thr Glu Asp Asp Ala Val Asp		
1220	1225	1230
Pro Asn Asp Ser Asp Ile Asp Pro Glu Ser Arg Glu Thr Asp Leu Leu		
1235	1240	1245
Ser Gly Met Asp Gly Lys Gly Ser Tyr Gln Leu Lys Gly Trp Lys Leu		
1250	1255	1260
Thr Gln Gln Gln Phe Val Ala Leu Leu Trp Lys Arg Leu Leu Ile Ala		
1265	1270	1275
Arg Arg Ser Arg Lys Gly Phe Phe Ala Gln Ile Val Leu Pro Ala Val		
1285	1290	1295
Phe Val Cys Ile Ala Leu Val Phe Ser Leu Ile Val Pro Pro Phe Gly		
1300	1305	1310
Lys Tyr Pro Ser Leu Glu Leu Gln Pro Trp Met Tyr Asn Glu Gln Tyr		
1315	1320	1325
Thr Phe Val Ser Asn Asp Ala Pro Glu Asp Met Gly Thr Gln Glu Leu		
1330	1335	1340
Leu Asn Ala Leu Thr Lys Asp Pro Gly Phe Gly Thr Arg Cys Met Glu		
1345	1350	1355
Gly Asn Pro Ile Pro Asp Thr Pro Cys Leu Ala Gly Glu Asp Trp		
1365	1370	1375
Thr Ile Ser Pro Val Pro Gln Ser Ile Val Asp Leu Phe Gln Asn Gly		
1380	1385	1390
Asn Trp Thr Met Lys Asn Pro Ser Pro Ala Cys Gln Cys Ser Ser Asp		
1395	1400	1405
Lys Ile Lys Lys Met Leu Pro Val Cys Pro Pro Gly Ala Gly Gly Leu		
1410	1415	1420
Pro Pro Pro Gln Arg Lys Gln Lys Thr Ala Asp Ile Leu Gln Asn Leu		

1425	1430	1435	1440
Thr Gly Arg Asn Ile Ser Asp Tyr Leu Val Lys Thr Tyr Val Gln Ile			
1445	1450	1455	
Ile Ala Lys Ser Leu Lys Asn Lys Ile Trp Val Asn Glu Phe Arg Tyr			
1460	1465	1470	
Gly Gly Phe Ser Leu Gly Val Ser Asn Ser Gln Ala Leu Pro Pro Ser			
1475	1480	1485	
His Glu Val Asn Asp Ala Ile Lys Gln Met Lys Lys Leu Leu Lys Leu			
1490	1495	1500	
Thr Lys Asp Thr Ser Ala Asp Arg Phe Leu Ser Ser Leu Gly Arg Phe			
1505	1510	1515	1520
Met Ala Gly Leu Asp Thr Lys Asn Asn Val Lys Val Trp Phe Asn Asn			
1525	1530	1535	
Lys Gly Trp His Ala Ile Ser Ser Phe Leu Asn Val Ile Asn Asn Ala			
1540	1545	1550	
Ile Leu Arg Ala Asn Leu Gln Lys Gly Glu Asn Pro Ser Gln Tyr Gly			
1555	1560	1565	
Ile Thr Ala Phe Asn His Pro Leu Asn Leu Thr Lys Gln Gln Leu Ser			
1570	1575	1580	
Glu Val Ala Leu Met Thr Thr Ser Val Asp Val Leu Val Ser Ile Cys			
1585	1590	1595	1600
Val Ile Phe Ala Met Ser Phe Val Pro Ala Ser Phe Val Val Phe Leu			
1605	1610	1615	
Ile Gln Glu Arg Val Ser Lys Ala Lys His Leu Gln Phe Ile Ser Gly			
1620	1625	1630	
Val Lys Pro Val Ile Tyr Trp Leu Ser Asn Phe Val Trp Asp Met Cys			
1635	1640	1645	
Asn Tyr Val Val Pro Ala Thr Leu Val Ile Ile Phe Ile Cys Phe			
1650	1655	1660	
Gln Gln Lys Ser Tyr Val Ser Ser Thr Asn Leu Pro Val Leu Ala Leu			
1665	1670	1675	1680
Leu Leu Leu Leu Tyr Gly Trp Ser Ile Thr Pro Leu Met Tyr Pro Ala			
1685	1690	1695	
Ser Phe Val Phe Lys Ile Pro Ser Thr Ala Tyr Val Val Leu Thr Ser			
1700	1705	1710	
Val Asn Leu Phe Ile Gly Ile Asn Gly Ser Val Ala Thr Phe Val Leu			
1715	1720	1725	
Glu Leu Phe Thr Asn Asn Lys Leu Asn Asp Ile Asn Asp Ile Leu Lys			

1730

1735

1740

Ser Val Phe Leu Ile Phe Pro His Phe Cys Leu Gly Arg Gly Leu Ile
1745 1750 1755 1760

Asp Met Val Lys Asn Gln Ala Met Ala Asp Ala Leu Glu Arg Phe Gly
1765 1770 1775

Glu Asn Arg Phe Val Ser Pro Leu Ser Trp Asp Leu Val Gly Arg Asn
1780 1785 1790

Leu Phe Ala Met Ala Val Glu Gly Val Val Phe Phe Leu Ile Thr Val
1795 1800 1805

Leu Ile Gln Tyr Arg Phe Phe Ile Arg Pro Arg Pro Val Lys Ala Lys
1810 1815 1820

Leu Pro Pro Leu Asn Asp Glu Asp Glu Asp Val Arg Arg Glu Arg Gln
1825 1830 1835 1840

Arg Ile Leu Asp Gly Gly Gln Asn Asp Ile Leu Glu Ile Lys Glu
1845 1850 1855

Leu Thr Lys Ile Tyr Arg Arg Lys Arg Lys Pro Ala Val Asp Arg Ile
1860 1865 1870

Cys Ile Gly Ile Pro Pro Gly Glu Cys Phe Gly Leu Leu Gly Val Asn
1875 1880 1885

Gly Ala Gly Lys Ser Thr Thr Phe Lys Met Leu Thr Gly Asp Thr Pro
1890 1895 1900

Val Thr Arg Gly Asp Ala Phe Leu Asn Lys Asn Ser Ile Leu Ser Asn
1905 1910 1915 1920

Ile His Glu Val His Gln Asn Met Gly Tyr Cys Pro Gln Phe Asp Ala
1925 1930 1935

Ile Thr Glu Leu Leu Thr Gly Arg Glu His Val Glu Phe Phe Ala Leu
1940 1945 1950

Leu Arg Gly Val Pro Glu Lys Glu Val Gly Lys Phe Gly Glu Trp Ala
1955 1960 1965

Ile Arg Lys Leu Gly Leu Val Lys Tyr Gly Glu Lys Tyr Ala Ser Asn
1970 1975 1980

Tyr Ser Gly Gly Asn Lys Arg Lys Leu Ser Thr Ala Met Ala Leu Ile
1985 1990 1995 2000

Gly Gly Pro Pro Val Val Phe Leu Asp Glu Pro Thr Thr Gly Met Asp
2005 2010 2015

Pro Lys Ala Arg Arg Phe Leu Trp Asn Cys Ala Leu Ser Ile Val Lys
2020 2025 2030

Glu Gly Arg Ser Val Val Leu Thr Ser His Ser Met Glu Glu Cys Glu

2035

2040

2045

Ala Leu Cys Thr Arg Met Ala Ile Met Val Asn Gly Arg Phe Arg Cys
2050 2055 2060

Leu Gly Ser Val Gln His Leu Lys Asn Arg Phe Gly Asp Gly Tyr Thr
2065 2070 2075 2080

Ile Val Val Arg Ile Ala Gly Ser Asn Pro Asp Leu Lys Pro Val Gln
2085 2090 2095

Glu Phe Phe Gly Leu Ala Phe Pro Gly Ser Val Leu Lys Glu Lys His
2100 2105 2110

Arg Asn Met Leu Gln Tyr Gln Leu Pro Ser Ser Leu Ser Ser Leu Ala
2115 2120 2125

Arg Ile Phe Ser Ile Leu Ser Gln Ser Lys Lys Arg Leu His Ile Glu
2130 2135 2140

Asp Tyr Ser Val Ser Gln Thr Thr Leu Asp Gln Val Phe Val Asn Phe
2145 2150 2155 2160

Ala Lys Asp Gln Ser Asp Asp His Leu Lys Asp Leu Ser Leu His
2165 2170 2175

Lys Asn Gln Thr Val Val Asp Val Ala Val Leu Thr Ser Phe Leu Gln
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Asp Glu Lys Val Lys Glu Ser Tyr Val
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Leu Arg Lys Arg Gln Lys Ile Arg Phe Val Val Glu Leu Val Trp Pro
20 25 30

Leu Ser Leu Phe Leu Val Leu Ile Trp Leu Arg Asn Ala Asn Pro Leu
35 40 45

Tyr Ser Gln His Glu Cys His Phe Pro Asn Lys Ala Met Pro Ser Ala
50 55 60

Gly Leu Leu Pro Trp Leu Gln Gly Ile Phe Cys Asn Met Asn Asn Pro
65 70 75 80

Cys Phe Gln Asn Pro Thr Pro Gly Glu Ser Pro Gly Thr Val Ser Asn
85 90 95

Tyr Asn Asn Ser Ile Leu Ala Arg Val Tyr Arg Asp Phe Gln Glu Leu
 100 105 110
 Phe Met Asp Thr Pro Glu Val Gln His Leu Gly Gln Val Trp Ala Glu
 115 120 125
 Leu Arg Thr Leu Ser Gln Phe Met Asp Thr Leu Arg Thr His Pro Glu
 130 135 140
 Arg Phe Ala Gly Arg Gly Leu Gln Ile Arg Asp Ile Leu Lys Asp Glu
 145 150 155 160
 Glu Ala Leu Thr Leu Phe Leu Met Arg Asn Ile Gly Leu Ser Asp Ser
 165 170 175
 Val Ala His Leu Leu Val Asn Ser Gln Val Arg Val Glu Gln Phe Ala
 180 185 190
 Tyr Gly Val Pro Asp Leu Glu Leu Thr Asp Ile Ala Cys Ser Glu Ala
 195 200 205
 Leu Leu Gln Arg Phe Ile Ile Phe Ser Gln Arg Arg Gly Ala Gln Thr
 210 215 220
 Val Arg Asp Ala Leu Cys Pro Leu Ser Gln Val Thr Leu Gln Trp Ile
 225 230 235 240
 Glu Asp Thr Leu Tyr Ala Asp Val Asp Phe Phe Lys Leu Phe His Val
 245 250 255
 Leu Pro Thr Leu Leu Asp Ser Ser Gln Gly Ile Asn Leu Arg Phe
 260 265 270
 Trp Gly Gly Ile Leu Ser Asp Leu Ser Pro Arg Met Gln Lys Phe Ile
 275 280 285
 His Arg Pro Ser Val Gln Asp Leu Leu Trp Val Ser Arg Pro Leu Leu
 290 295 300
 Gln Asn Gly Pro Glu Thr Phe Thr Gln Leu Met Ser Ile Leu Ser
 305 310 315 320
 Asp Leu Leu Cys Gly Tyr Pro Glu Gly Gly Ser Arg Val Phe Ser
 325 330 335
 Phe Asn Trp Tyr Glu Asp Asn Asn Tyr Lys Ala Phe Leu Gly Ile Asp
 340 345 350
 Ser Thr Arg Lys Asp Pro Ala Tyr Ser Tyr Asp Lys Arg Thr Thr Ser
 355 360 365
 Phe Cys Asn Ser Leu Ile Gln Ser Leu Glu Ser Asn Pro Leu Thr Lys
 370 375 380
 Ile Ala Trp Arg Ala Ala Lys Pro Leu Leu Met Gly Lys Ile Leu Phe
 385 390 395 400

Thr Pro Asp Ser Pro Ala Ala Arg Arg Ile Met Lys Asn Ala Asn Ser
 405 410 415
 Thr Phe Glu Glu Leu Asp Arg Val Arg Lys Leu Val Lys Ala Trp Glu
 420 425 430
 Glu Val Gly Pro Gln Ile Trp Tyr Phe Phe Glu Lys Ser Thr Gln Met
 435 440 445
 Thr Val Ile Arg Asp Thr Leu Gln His Pro Thr Val Lys Asp Phe Ile
 450 455 460
 Asn Arg Gln Leu Gly Glu Glu Gly Ile Thr Thr Glu Ala Val Leu Asn
 465 470 475 480
 Phe Phe Ser Asn Gly Pro Gln Glu Lys Gln Ala Asp Asp Met Thr Ser
 485 490 495
 Phe Asp Trp Arg Asp Ile Phe Asn Ile Thr Asp Arg Phe Leu Arg Leu
 500 505 510
 Ala Asn Gln Tyr Leu Glu Cys Leu Val Leu Asp Lys Phe Glu Ser Tyr
 515 520 525
 Asp Asp Glu Val Gln Leu Thr Gln Arg Ala Leu Ser Leu Leu Glu Glu
 530 535 540
 Asn Arg Phe Trp Ala Gly Val Val Phe Pro Gly Met Tyr Pro Trp Ala
 545 550 555 560
 Ser Ser Leu Pro Pro His Val Lys Tyr Lys Ile Arg Met Asp Ile Asp
 565 570 575
 Val Val Glu Lys Thr Asn Lys Ile Lys Asp Arg Tyr Trp Asp Ser Gly
 580 585 590
 Pro Arg Ala Asp Pro Val Glu Asp Phe Arg Tyr Ile Trp Gly Gly Phe
 595 600 605
 Ala Tyr Leu Gln Asp Met Val Glu Gln Gly Ile Val Lys Ser Gln Met
 610 615 620
 Gln Ala Glu Pro Pro Ile Gly Val Tyr Leu Gln Gln Met Pro Tyr Pro
 625 630 635 640
 Cys Phe Val Asp Asp Ser Phe Met Ile Ile Leu Asn Arg Cys Phe Pro
 645 650 655
 Ile Phe Met Val Leu Ala Trp Ile Tyr Ser Val Ser Met Thr Val Lys
 660 665 670
 Gly Ile Val Leu Glu Lys Glu Leu Arg Leu Lys Glu Thr Leu Lys Asn
 675 680 685
 Gln Gly Val Ser Asn Ala Val Ile Trp Cys Thr Trp Phe Leu Asp Ser
 690 695 700

Phe Ser Ile Met Ala Leu Ser Ile Phe Leu Leu Thr Leu Phe Ile Met
 705 710 715 720
 His Gly Arg Ile Leu His Tyr Ser Asp Pro Phe Ile Leu Phe Leu Phe
 725 730 735
 Leu Leu Ala Phe Ala Thr Ala Thr Ile Met Gln Ser Phe Leu Leu Ser
 740 745 750
 Thr Leu Phe Ser Lys Ala Ser Leu Ala Ala Ala Cys Ser Gly Val Ile
 755 760 765
 Tyr Phe Thr Leu Tyr Leu Pro His Val Leu Cys Phe Ala Trp Gln Asp
 770 775 780
 Arg Met Thr Ala Asp Leu Lys Thr Thr Val Ser Leu Leu Ser Ser Val
 785 790 795 800
 Ala Phe Gly Phe Gly Thr Glu Tyr Leu Val Arg Phe Glu Glu Gln Gly
 805 810 815
 Leu Gly Leu Gln Trp Ser Asn Ile Gly Lys Ser Pro Leu Glu Gly Asp
 820 825 830
 Glu Phe Ser Phe Leu Leu Ser Met Lys Met Met Leu Leu Asp Ala Ala
 835 840 845
 Leu Tyr Gly Leu Leu Ala Trp Tyr Leu Asp Gln Val Phe Pro Gly Asp
 850 855 860
 Tyr Gly Thr Pro Leu Pro Trp Tyr Phe Leu Leu Gln Glu Ser Tyr Trp
 865 870 875 880
 Leu Gly Gly Glu Gly Cys Ser Thr Arg Glu Glu Arg Ala Leu Glu Lys
 885 890 895
 Thr Glu Pro Leu Thr Glu Glu Met Glu Asp Pro Glu His Pro Glu Gly
 900 905 910
 Met Asn Asp Ser Phe Phe Glu Arg Glu Leu Pro Gly Leu Val Pro Gly
 915 920 925
 Val Cys Val Lys Asn Leu Val Lys Val Phe Glu Pro Ser Gly Arg Pro
 930 935 940
 Ala Val Asp Arg Leu Asn Ile Thr Phe Tyr Glu Asn Gln Ile Thr Ala
 945 950 955 960
 Phe Leu Gly His Asn Gly Ala Gly Lys Thr Thr Thr Leu Ser Ile Leu
 965 970 975
 Thr Gly Leu Leu Pro Pro Thr Ser Gly Thr Val Leu Ile Gly Gly Lys
 980 985 990
 Asp Ile Glu Thr Asn Leu Asp Val Val Arg Gln Ser Leu Gly Met Cys
 995 1000 1005

Pro Gln His Asn Ile Leu Phe His His Leu Thr Val Ala Glu His Ile
 1010 1015 1020

Leu Phe Tyr Ala Gln Leu Lys Gly Arg Ser Trp Glu Glu Ala Gln Leu
 1025 1030 1035 1040

Glu Met Glu Ala Met Leu Glu Asp Thr Gly Leu His His Lys Arg Asn
 1045 1050 1055

Glu Glu Ala Gln Asp Leu Ser Gly Gly Met Gln Arg Lys Leu Ser Val
 1060 1065 1070

Ala Ile Ala Phe Val Gly Asp Ser Lys Val Val Val Leu Asp Glu Pro
 1075 1080 1085

Thr Ser Gly Val Asp Pro Tyr Ser Arg Arg Ser Ile Trp Asp Leu Leu
 1090 1095 1100

Leu Lys Tyr Arg Ser Gly Arg Thr Ile Ile Met Ser Thr His His Met
 1105 1110 1115 1120

Asp Glu Ala Asp Leu Leu Gly Asp Arg Ile Ala Ile Ile Ser Gln Gly
 1125 1130 1135

Arg Leu Tyr Cys Ser Gly Thr Pro Leu Phe Leu Lys Asn Cys Phe Gly
 1140 1145 1150

Thr Gly Phe Tyr Leu Thr Leu Val Arg Lys Met Lys Asn Ile Gln Ser
 1155 1160 1165

Gln Arg Gly Cys Glu Gly Val Cys Ser Cys Thr Ser Lys Gly Phe
 1170 1175 1180

Ser Thr Arg Cys Pro Thr Arg Val Asp Glu Ile Thr Glu Glu Gln Val
 1185 1190 1195 1200

Leu Asp Gly Asp Val Gln Glu Leu Met Asp Leu Val Tyr His His Val
 1205 1210 1215

Pro Glu Ala Lys Leu Val Glu Cys Ile Gly Gln Glu Leu Ile Phe Leu
 1220 1225 1230

Leu Pro Asn Lys Asn Phe Lys Gln Arg Ala Tyr Ala Ser Leu Phe Arg
 1235 1240 1245

Glu Leu Glu Glu Thr Leu Ala Asp Leu Gly Leu Ser Ser Phe Gly Ile
 1250 1255 1260

Ser Asp Thr Pro Leu Glu Glu Ile Phe Leu Lys Val Thr Glu Asp Ala
 1265 1270 1275 1280

Gly Ala Gly Ser Met Phe Val Gly Gly Ala Gln Gln Lys Arg Glu Gln
 1285 1290 1295

Ala Gly Leu Arg His Pro Cys Ser Ala Pro Thr Glu Lys Leu Arg Gln
 1300 1305 1310

Tyr Ala Gln Ala Pro His Thr Cys Ser Pro Gly Gln Val Asp Pro Pro
1315 1320 1325

Lys Gly Gln Pro Ser Pro Glu Pro Glu Asp Pro Gly Val Pro Phe Asn
1330 1335 1340

Thr Gly Ala Arg Leu Ile Leu Gln His Val Gln Ala Leu Leu Val Lys
1345 1350 1355 1360

Arg Phe His His Thr Ile Arg Ser Arg Lys Asp Phe Val Ala Gln Ile
1365 1370 1375

Val Leu Pro Ala Thr Phe Val Phe Leu Ala Leu Met Leu Ser Ile Ile
1380 1385 1390

Val Pro Pro Phe Gly Glu Phe Pro Ala Leu Thr Leu His Pro Trp Met
1395 1400 1405

Tyr Gly His Gln Tyr Thr Phe Phe Ser Met Asp Glu Pro Asn Asn Glu
1410 1415 1420

His Leu Glu Val Leu Ala Asp Val Leu Leu Asn Arg Pro Gly Phe Gly
1425 1430 1435 1440

Asn Arg Cys Leu Lys Glu Glu Trp Leu Pro Glu Tyr Pro Cys Ile Asn
1445 1450 1455

Ala Thr Ser Trp Lys Thr Pro Ser Val Ser Pro Asn Ile Thr His Leu
1460 1465 1470

Phe Gln Lys Gln Lys Trp Thr Ala Ala His Pro Ser Pro Ser Cys Lys
1475 1480 1485

Cys Ser Thr Arg Glu Lys Leu Thr Met Leu Pro Glu Cys Pro Glu Gly
1490 1495 1500

Ala Gly Gly Leu Pro Pro Gln Arg Thr Gln Arg Ser Thr Glu Val
1505 1510 1515 1520

Leu Gln Asp Leu Thr Asn Arg Asn Ile Ser Asp Tyr Leu Val Lys Thr
1525 1530 1535

Tyr Pro Ala Leu Ile Arg Ser Ser Leu Lys Ser Lys Phe Trp Val Asn
1540 1545 1550

Glu Gln Arg Tyr Gly Gly Ile Ser Ile Gly Gly Lys Leu Pro Ala Ile
1555 1560 1565

Pro Ile Ser Gly Glu Ala Leu Val Gly Phe Leu Ser Gly Leu Gly Gln
1570 1575 1580

Met Met Asn Val Ser Gly Gly Pro Val Thr Arg Glu Ala Ser Lys Glu
1585 1590 1595 1600

Met Leu Asp Phe Leu Lys His Leu Glu Thr Thr Asp Asn Ile Lys Val
1605 1610 1615

Trp Phe Asn Asn Lys Gly Trp His Ala Leu Val Ser Phe Leu Asn Val
1620 1625 1630

Ala His Asn Ala Ile Leu Arg Ala Ser Leu Pro Arg Asp Arg Asp Pro
1635 1640 1645

Glu Glu Tyr Gly Ile Thr Val Ile Ser Gln Pro Leu Asn Leu Thr Lys
1650 1655 1660

Glu Gln Leu Ser Asp Ile Thr Val Leu Thr Thr Ser Val Asp Ala Val
1665 1670 1675 1680

Val Ala Ile Cys Val Ile Phe Ala Met Ser Phe Val Pro Ala Ser Phe
1685 1690 1695

Val Leu Tyr Leu Ile Gln Glu Arg Val Thr Lys Ala Lys His Leu Gln
1700 1705 1710

Phe Ile Ser Gly Val Ser Pro Thr Thr Tyr Trp Leu Thr Asn Phe Leu
1715 1720 1725

Trp Asp Ile Met Asn Tyr Ala Val Ser Ala Gly Leu Val Val Gly Ile
1730 1735 1740

Phe Ile Gly Phe Gln Lys Lys Ala Tyr Thr Ser Pro Asp Asn Leu Pro
1745 1750 1755 1760

Ala Leu Val Ser Leu Leu Met Leu Tyr Gly Trp Ala Val Ile Pro Met
1765 1770 1775

Met Tyr Pro Ala Ser Phe Leu Phe Glu Val Pro Ser Thr Ala Tyr Val
1780 1785 1790

Ala Leu Ser Cys Ala Asn Leu Phe Ile Gly Ile Asn Ser Ser Ala Ile
1795 1800 1805

Thr Phe Val Leu Glu Leu Phe Glu Asn Asn Arg Thr Leu Leu Arg Phe
1810 1815 1820

Asn Ala Met Leu Arg Lys Leu Leu Ile Val Phe Pro His Phe Cys Leu
1825 1830 1835 1840

Gly Arg Gly Leu Ile Asp Leu Ala Leu Ser Gln Ala Val Thr Asp Val
1845 1850 1855

Tyr Ala Gln Phe Gly Glu Glu Tyr Ser Ala Asn Pro Phe Gln Trp Asp
1860 1865 1870

Leu Ile Gly Lys Asn Leu Val Ala Met Ala Ile Glu Gly Val Val Tyr
1875 1880 1885

Phe Leu Leu Thr Leu Leu Ile Gln His His Phe Phe Leu Thr Arg Trp
1890 1895 1900

Ile Ala Glu Pro Ala Arg Glu Pro Val Phe Asp Glu Asp Asp Asp Val
1905 1910 1915 1920

Ala Glu Glu Arg Gln Arg Val Met Ser Gly Gly Asn Lys Thr Asp Ile
 1925 1930 1935
 Leu Lys Leu Asn Glu Leu Thr Lys Val Tyr Ser Gly Ser Ser Ser Pro
 1940 1945 1950
 Ala Val Asp Arg Leu Cys Val Gly Val Arg Pro Gly Glu Cys Phe Gly
 1955 1960 1965
 Leu Leu Gly Val Asn Gly Ala Gly Lys Thr Thr Phe Lys Met Leu
 1970 1975 1980
 Thr Gly Asp Thr Thr Val Thr Ser Gly Asp Ala Thr Val Ala Gly Lys
 1985 1990 1995 2000
 Ser Ile Leu Thr Ser Ile Ser Asp Val His Gln Asn Met Gly Tyr Cys
 2005 2010 2015
 Pro Gln Phe Asp Ala Ile Asp Asp Leu Leu Thr Gly Arg Glu His Leu
 2020 2025 2030
 Tyr Leu Tyr Ala Arg Leu Arg Gly Val Pro Ser Lys Glu Ile Glu Lys
 2035 2040 2045
 Val Ala Asn Trp Gly Ile Gln Ser Leu Gly Leu Ser Leu Tyr Ala Asp
 2050 2055 2060
 Arg Leu Ala Gly Thr Tyr Ser Gly Gly Asn Lys Arg Lys Leu Ser Thr
 2065 2070 2075 2080
 Ala Ile Ala Leu Thr Gly Cys Pro Pro Leu Leu Leu Asp Glu Pro
 2085 2090 2095
 Thr Thr Gly Met Asp Pro Gln Ala Arg Arg Met Leu Trp Asn Thr Ile
 2100 2105 2110
 Val Ser Ile Ile Arg Glu Gly Arg Ala Val Val Leu Thr Ser His Ser
 2115 2120 2125
 Met Glu Glu Cys Glu Ala Leu Cys Thr Arg Leu Ala Ile Met Val Lys
 2130 2135 2140
 Gly Thr Phe Gln Cys Leu Gly Thr Ile Gln His Leu Lys Tyr Lys Phe
 2145 2150 2155 2160
 Gly Asp Gly Tyr Ile Val Thr Met Lys Ile Lys Ser Pro Lys Asp Asp
 2165 2170 2175
 Leu Leu Pro Asp Leu Asn Pro Val Glu Gln Phe Phe Gln Gly Asn Phe
 2180 2185 2190
 Pro Gly Ser Val Gln Arg Glu Arg His His Ser Met Leu Gln Phe Gln
 2195 2200 2205
 Val Pro Ser Ser Ser Leu Ala Arg Ile Phe Gln Leu Leu Ile Ser His
 2210 2215 2220

Lys Asp Ser Leu Leu Ile Glu Glu Tyr Ser Val Thr Gln Thr Thr Leu
 2225 2230 2235 2240
 Asp Gln Val Phe Val Asn Phe Ala Lys Gln Gln Thr Glu Thr Tyr Asp
 2245 2250 2255
 Leu Pro Leu His Pro Arg Ala Ala Gly Ala Ser Trp Gln Ala Lys Leu
 2260 2265 2270
 Glu Glu Lys Ser Gly Arg Leu Gln Thr Gln Glu Pro Leu Pro Ala Gly
 2275 2280 2285
 Ser Glu Gln Leu Ala Asn Gly Ser Asn Pro Thr Ala Ala Glu Asp Lys
 2290 2295 2300
 His Thr Arg Ser Pro Gln
 2305 2310

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 <212> PRT
 <213> Homo sapiens

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 Leu Phe Ile Phe Leu Ile Leu Ile Ser Val Arg Leu Ser Tyr Pro Pro
 35 40 45
 Tyr Glu Gln His Glu Cys His Phe Pro Asn Lys Ala Met Pro Ser Ala
 50 55 60
 Gly Thr Leu Pro Trp Val Gln Gly Ile Ile Cys Asn Ala Asn Asn Pro
 65 70 75 80
 Cys Phe Arg Tyr Pro Thr Pro Gly Glu Ala Pro Gly Val Val Gly Asn
 85 90 95
 Phe Asn Lys Ser Ile Val Ala Arg Leu Phe Ser Asp Ala Arg Arg Leu
 100 105 110
 Leu Leu Tyr Ser Gln Lys Asp Thr Ser Met Lys Asp Met Arg Lys Val
 115 120 125
 Leu Arg Thr Leu Gln Gln Ile Lys Lys Ser Ser Ser Asn Leu Lys Leu
 130 135 140
 Gln Asp Phe Leu Val Asp Asn Glu Thr Phe Ser Gly Phe Leu Tyr His
 145 150 155 160
 Asn Leu Ser Leu Pro Lys Ser Thr Val Asp Lys Met Leu Arg Ala Asp
 165 170 175

Val Ile Leu His Lys Val Phe Leu Gln Gly Tyr Gln Leu His Leu Thr
 180 185 190
 Ser Leu Cys Asn Gly Ser Lys Ser Glu Glu Met Ile Gln Leu Gly Asp
 195 200 205
 Gln Glu Val Ser Glu Leu Cys Gly Leu Pro Arg Glu Lys Leu Ala Ala
 210 215 220
 Ala Glu Arg Val Leu Arg Ser Asn Met Asp Ile Leu Lys Pro Ile Leu
 225 230 235 240
 Arg Thr Leu Asn Ser Thr Ser Pro Phe Pro Ser Lys Glu Leu Ala Glu
 245 250 255
 Ala Thr Lys Thr Leu Leu His Ser Leu Gly Thr Leu Ala Gln Glu Leu
 260 265 270
 Phe Ser Met Arg Ser Trp Ser Asp Met Arg Gln Glu Val Met Phe Leu
 275 280 285
 Thr Asn Val Asn Ser Ser Ser Ser Thr Gln Ile Tyr Gln Ala Val
 290 295 300
 Ser Arg Ile Val Cys Gly His Pro Glu Gly Gly Leu Lys Ile Lys
 305 310 315 320
 Ser Leu Asn Trp Tyr Glu Asp Asn Asn Tyr Lys Ala Leu Phe Gly Gly
 325 330 335
 Asn Gly Thr Glu Glu Asp Ala Glu Thr Phe Tyr Asp Asn Ser Thr Thr
 340 345 350
 Pro Tyr Cys Asn Asp Leu Met Lys Asn Leu Glu Ser Ser Pro Leu Ser
 355 360 365
 Arg Ile Ile Trp Lys Ala Leu Lys Pro Leu Leu Val Gly Lys Ile Leu
 370 375 380
 Tyr Thr Pro Asp Thr Pro Ala Thr Arg Gln Val Met Ala Glu Val Asn
 385 390 395 400
 Lys Thr Phe Gln Glu Leu Ala Val Phe His Asp Leu Glu Gly Met Trp
 405 410 415
 Glu Glu Leu Ser Pro Lys Ile Trp Thr Phe Met Glu Asn Ser Gln Glu
 420 425 430
 Met Asp Leu Val Arg Met Leu Leu Asp Ser Arg Asp Asn Asp His Phe
 435 440 445
 Trp Glu Gln Gln Leu Asp Gly Leu Asp Trp Thr Ala Gln Asp Ile Val
 450 455 460
 Ala Phe Leu Ala Lys His Pro Glu Asp Val Gln Ser Ser Asn Gly Ser
 465 470 475 480

Val Tyr Thr Trp Arg Glu Ala Phe Asn Glu Thr Asn Gln Ala Ile Arg
 485 490 495
 Thr Ile Ser Arg Phe Met Glu Cys Val Asn Leu Asn Lys Leu Glu Pro
 500 505 510
 Ile Ala Thr Glu Val Trp Leu Ile Asn Lys Ser Met Glu Leu Leu Asp
 515 520 525
 Glu Arg Lys Phe Trp Ala Gly Ile Val Phe Thr Gly Ile Thr Pro Gly
 530 535 540
 Ser Ile Glu Leu Pro His His Val Lys Tyr Lys Ile Arg Met Asp Ile
 545 550 555 560
 Asp Asn Val Glu Arg Thr Asn Lys Ile Lys Asp Gly Tyr Trp Asp Pro
 565 570 575
 Gly Pro Arg Ala Asp Pro Phe Glu Asp Met Arg Tyr Val Trp Gly Gly
 580 585 590
 Phe Ala Tyr Leu Gln Asp Val Val Glu Gln Ala Ile Ile Arg Val Leu
 595 600 605
 Thr Gly Thr Glu Lys Lys Thr Gly Val Tyr Met Gln Gln Met Pro Tyr
 610 615 620
 Pro Cys Tyr Val Asp Asp Ile Phe Leu Arg Val Met Ser Arg Ser Met
 625 630 635 640
 Pro Leu Phe Met Thr Leu Ala Trp Ile Tyr Ser Val Ala Val Ile Ile
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 Lys Gly Ile Val Tyr Glu Lys Glu Ala Arg Leu Lys Glu Thr Met Arg
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 Ile Met Gly Leu Asp Asn Ser Ile Leu Trp Phe Ser Trp Phe Ile Ser
 675 680 685
 Ser Leu Ile Pro Leu Leu Val Ser Ala Gly Leu Leu Val Val Ile Leu
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 Lys Leu Gly Asn Leu Leu Pro Tyr Ser Asp Pro Ser Val Val Phe Val
 705 710 715 720
 Phe Leu Ser Val Phe Ala Val Val Thr Ile Leu Gln Cys Phe Leu Ile
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 Ser Thr Leu Phe Ser Arg Ala Asn Leu Ala Ala Ala Cys Gly Gly Ile
 740 745 750
 Ile Tyr Phe Thr Leu Tyr Leu Pro Tyr Val Leu Cys Val Ala Trp Gln
 755 760 765
 Asp Tyr Val Gly Phe Thr Leu Lys Ile Phe Ala Ser Leu Leu Ser Pro
 770 775 780

Val Ala Phe Gly Phe Gly Cys Glu Tyr Phe Ala Leu Phe Glu Glu Gln
785 790 795 800

Gly Ile Gly Val Gln Trp Asp Asn Leu Phe Glu Ser Pro Val Glu Glu
805 810 815

Asp Gly Phe Asn Leu Thr Thr Ser Val Ser Met Met Leu Phe Asp Thr
820 825 830

Phe Leu Tyr Gly Val Met Thr Trp Tyr Ile Glu Ala Val Phe Pro Gly
835 840 845

Gln Tyr Gly Ile Pro Arg Pro Trp Tyr Phe Pro Cys Thr Lys Ser Tyr
850 855 860

Trp Phe Gly Glu Glu Ser Asp Glu Lys Ser His Pro Gly Ser Asn Gln
865 870 875 880

Lys Arg Ile Ser Glu Ile Cys Met Glu Glu Glu Pro Thr His Leu Lys
885 890 895

Leu Gly Val Ser Ile Gln Asn Leu Val Lys Val Tyr Arg Asp Gly Met
900 905 910

Lys Val Ala Val Asp Gly Leu Ala Leu Asn Phe Tyr Glu Gly Gln Ile
915 920 925

Thr Ser Phe Leu Gly His Asn Gly Ala Gly Lys Thr Thr Thr Met Ser
930 935 940

Ile Leu Thr Gly Leu Phe Pro Pro Thr Ser Gly Thr Ala Tyr Ile Leu
945 950 955 960

Gly Lys Asp Ile Arg Ser Glu Met Ser Thr Ile Arg Gln Asn Leu Gly
965 970 975

Val Cys Pro Gln His Asn Val Leu Phe Asp Met Leu Thr Val Glu Glu
980 985 990

His Ile Trp Phe Tyr Ala Arg Leu Lys Gly Leu Ser Glu Lys His Val
995 1000 1005

Lys Ala Glu Met Glu Gln Met Ala Leu Asp Val Gly Leu Pro Ser Ser
1010 1015 1020

Lys Leu Lys Ser Lys Thr Ser Gln Leu Ser Gly Gly Met Gln Arg Lys
1025 1030 1035 1040

Leu Ser Val Ala Leu Ala Phe Val Gly Gly Ser Lys Val Val Ile Leu
1045 1050 1055

Asp Glu Pro Thr Ala Gly Val Asp Pro Tyr Ser Arg Arg Gly Ile Trp
1060 1065 1070

Glu Leu Leu Leu Lys Tyr Arg Gln Gly Arg Thr Ile Ile Leu Ser Thr
1075 1080 1085

His His Met Asp Glu Ala Asp Val Leu Gly Asp Arg Ile Ala Ile Ile
1090 1095 1100

Ser His Gly Lys Leu Cys Cys Val Gly Ser Ser Leu Phe Leu Lys Asn
1105 1110 1115 1120

Gln Leu Gly Thr Gly Tyr Tyr Leu Thr Leu Val Lys Lys Asp Val Glu
1125 1130 1135

Ser Ser Leu Ser Ser Cys Arg Asn Ser Ser Ser Thr Val Ser Tyr Leu
1140 1145 1150

Lys Lys Glu Asp Ser Val Ser Gln Ser Ser Ser Asp Ala Gly Leu Gly
1155 1160 1165

Ser Asp His Glu Ser Asp Thr Leu Thr Ile Asp Val Ser Ala Ile Ser
1170 1175 1180

Asn Leu Ile Arg Lys His Val Ser Glu Ala Arg Leu Val Glu Asp Ile
1185 1190 1195 1200

Gly His Glu Leu Thr Tyr Val Leu Pro Tyr Glu Ala Ala Lys Glu Gly
1205 1210 1215

Ala Phe Val Glu Leu Phe His Glu Ile Asp Asp Arg Leu Ser Asp Leu
1220 1225 1230

Gly Ile Ser Ser Tyr Gly Ile Ser Glu Thr Thr Leu Glu Glu Ile Phe
1235 1240 1245

Leu Lys Val Ala Glu Glu Ser Gly Val Asp Ala Glu Thr Ser Asp Gly
1250 1255 1260

Thr Leu Pro Ala Arg Arg Asn Arg Arg Ala Phe Gly Asp Lys Gln Ser
1265 1270 1275 1280

Cys Leu Arg Pro Phe Thr Glu Asp Asp Ala Ala Asp Pro Asn Asp Ser
1285 1290 1295

Asp Ile Asp Pro Glu Ser Arg Glu Thr Asp Leu Leu Ser Gly Met Asp
1300 1305 1310

Gly Lys Gly Ser Tyr Gln Val Lys Gly Trp Lys Leu Thr Gln Gln Gln
1315 1320 1325

Phe Val Ala Leu Leu Trp Lys Arg Leu Leu Ile Ala Arg Arg Ser Arg
1330 1335 1340

Lys Gly Phe Phe Ala Gln Ile Val Leu Pro Ala Val Phe Val Cys Ile
1345 1350 1355 1360

Ala Leu Val Phe Ser Leu Ile Val Pro Pro Phe Gly Lys Tyr Pro Ser
1365 1370 1375

Leu Glu Leu Gln Pro Trp Met Tyr Asn Glu Gln Tyr Thr Phe Val Ser
1380 1385 1390

Asn Asp Ala Pro Glu Asp Thr Gly Thr Leu Glu Leu Leu Asn Ala Leu
1395 1400 1405

Thr Lys Asp Pro Gly Phe Gly Thr Arg Cys Met Glu Gly Asn Pro Ile
1410 1415 1420

Pro Asp Thr Pro Cys Gln Ala Gly Glu Glu Trp Thr Thr Ala Pro
1425 1430 1435 1440

Val Pro Gln Thr Ile Met Asp Leu Phe Gln Asn Gly Asn Trp Thr Met
1445 1450 1455

Gln Asn Pro Ser Pro Ala Cys Gln Cys Ser Ser Asp Lys Ile Lys Lys
1460 1465 1470

Met Leu Pro Val Cys Pro Pro Gly Ala Gly Gly Leu Pro Pro Pro Gln
1475 1480 1485

Arg Lys Gln Asn Thr Ala Asp Ile Leu Gln Asp Leu Thr Gly Arg Asn
1490 1495 1500

Ile Ser Asp Tyr Leu Val Lys Thr Tyr Val Gln Ile Ile Ala Lys Ser
1505 1510 1515 1520

Leu Lys Asn Lys Ile Trp Val Asn Glu Phe Arg Tyr Gly Gly Phe Ser
1525 1530 1535

Leu Gly Val Ser Asn Thr Gln Ala Leu Pro Pro Ser Gln Glu Val Asn
1540 1545 1550

Asp Ala Thr Lys Gln Met Lys Lys His Leu Lys Leu Ala Lys Asp Ser
1555 1560 1565

Ser Ala Asp Arg Phe Leu Asn Ser Leu Gly Arg Phe Met Thr Gly Leu
1570 1575 1580

Asp Thr Arg Asn Asn Val Lys Val Trp Phe Asn Asn Lys Gly Trp His
1585 1590 1595 1600

Ala Ile Ser Ser Phe Leu Asn Val Ile Asn Asn Ala Ile Leu Arg Ala
1605 1610 1615

Asn Leu Gln Lys Gly Glu Asn Pro Ser His Tyr Gly Ile Thr Ala Phe
1620 1625 1630

Asn His Pro Leu Asn Leu Thr Lys Gln Gln Leu Ser Glu Val Ala Pro
1635 1640 1645

Met Thr Thr Ser Val Asp Val Leu Val Ser Ile Cys Val Ile Phe Ala
1650 1655 1660

Met Ser Phe Val Pro Ala Ser Phe Val Val Phe Leu Ile Gln Glu Arg
1665 1670 1675 1680

Val Ser Lys Ala Lys His Leu Gln Phe Ile Ser Gly Val Lys Pro Val
1685 1690 1695

Ile Tyr Trp Leu Ser Asn Phe Val Trp Asp Met Cys Asn Tyr Val Val
 1700 1705 1710

 Pro Ala Thr Leu Val Ile Ile Phe Ile Cys Phe Gln Gln Lys Ser
 1715 1720 1725

 Tyr Val Ser Ser Thr Asn Leu Pro Val Leu Ala Leu Leu Leu Leu
 1730 1735 1740

 Tyr Gly Trp Ser Ile Thr Pro Leu Met Tyr Pro Ala Ser Phe Val Phe
 1745 1750 1755 1760

 Lys Ile Pro Ser Thr Ala Tyr Val Val Leu Thr Ser Val Asn Leu Phe
 1765 1770 1775

 Ile Gly Ile Asn Gly Ser Val Ala Thr Phe Val Leu Glu Leu Phe Thr
 1780 1785 1790

 Asp Asn Lys Leu Asn Asn Ile Asn Asp Ile Leu Lys Ser Val Phe Leu
 1795 1800 1805

 Ile Phe Pro His Phe Cys Leu Gly Arg Gly Leu Ile Asp Met Val Lys
 1810 1815 1820

 Asn Gln Ala Met Ala Asp Ala Leu Glu Arg Phe Gly Glu Asn Arg Phe
 1825 1830 1835 1840

 Val Ser Pro Leu Ser Trp Asp Leu Val Gly Arg Asn Leu Phe Ala Met
 1845 1850 1855

 Ala Val Glu Gly Val Val Phe Phe Leu Ile Thr Val Leu Ile Gln Tyr
 1860 1865 1870

 Arg Phe Phe Ile Arg Pro Arg Pro Val Asn Ala Lys Leu Ser Pro Leu
 1875 1880 1885

 Asn Asp Glu Asp Glu Asp Val Arg Arg Glu Arg Gln Arg Ile Leu Asp
 1890 1895 1900

 Gly Gly Gln Asn Asp Ile Leu Glu Ile Lys Glu Leu Thr Lys Ile
 1905 1910 1915 1920

 Tyr Arg Arg Lys Arg Lys Pro Ala Val Asp Arg Ile Cys Val Gly Ile
 1925 1930 1935

 Pro Pro Gly Glu Cys Phe Gly Leu Leu Gly Val Asn Gly Ala Gly Lys
 1940 1945 1950

 Ser Ser Thr Phe Lys Met Leu Thr Gly Asp Thr Thr Val Thr Arg Gly
 1955 1960 1965

 Asp Ala Phe Leu Asn Arg Asn Ser Ile Leu Ser Asn Ile His Glu Val
 1970 1975 1980

 His Gln Asn Met Gly Tyr Cys Pro Gln Phe Asp Ala Ile Thr Glu Leu
 1985 1990 1995 2000

Leu Thr Gly Arg Glu His Val Glu Phe Phe Ala Leu Leu Arg Gly Val
 2005 2010 2015
 Pro Glu Lys Glu Val Gly Lys Val Gly Glu Trp Ala Ile Arg Lys Leu
 2020 2025 2030
 Gly Leu Val Lys Tyr Gly Glu Lys Tyr Ala Gly Asn Tyr Ser Gly Gly
 2035 2040 2045
 Asn Lys Arg Lys Leu Ser Thr Ala Met Ala Leu Ile Gly Gly Pro Pro
 2050 2055 2060
 Val Val Phe Leu Asp Glu Pro Thr Thr Gly Met Asp Pro Lys Ala Arg
 2065 2070 2075 2080
 Arg Phe Leu Trp Asn Cys Ala Leu Ser Val Val Lys Glu Gly Arg Ser
 2085 2090 2095
 Val Val Leu Thr Ser His Ser Met Glu Glu Cys Glu Ala Leu Cys Thr
 2100 2105 2110
 Arg Met Ala Ile Met Val Asn Gly Arg Phe Arg Cys Leu Gly Ser Val
 2115 2120 2125
 Gln His Leu Lys Asn Arg Phe Gly Asp Gly Tyr Thr Ile Val Val Arg
 2130 2135 2140
 Ile Ala Gly Ser Asn Pro Asp Leu Lys Pro Val Gln Asp Phe Phe Gly
 2145 2150 2155 2160
 Leu Ala Phe Pro Gly Ser Val Pro Lys Glu Lys His Arg Asn Met Leu
 2165 2170 2175
 Gln Tyr Gln Leu Pro Ser Ser Leu Ser Ser Leu Ala Arg Ile Phe Ser
 2180 2185 2190
 Ile Leu Ser Gln Ser Lys Lys Arg Leu His Ile Glu Asp Tyr Ser Val
 2195 2200 2205
 Ser Gln Thr Thr Leu Asp Gln Val Phe Val Asn Phe Ala Lys Asp Gln
 2210 2215 2220
 Ser Asp Asp Asp His Leu Lys Asp Leu Ser Leu His Lys Asn Gln Thr
 2225 2230 2235 2240
 Val Val Asp Val Ala Val Leu Thr Ser Phe Leu Gln Asp Glu Lys Val
 2245 2250 2255
 Lys Glu Ser Tyr Val
 2260

<210> 12
 <211> 2273
 <212> PRT
 <213> Homo sapiens

<400> 12

Met Gly Phe Val Arg Gln Ile Gln Leu Leu Leu Trp Lys Asn Trp Thr
1 5 10 15

Leu Arg Lys Arg Gln Lys Ile Arg Phe Val Val Glu Leu Val Trp Pro
20 25 30

Leu Ser Leu Phe Leu Val Leu Ile Trp Leu Arg Asn Ala Asn Pro Leu
35 40 45

Tyr Ser His His Glu Cys His Phe Pro Asn Lys Ala Met Pro Ser Ala
50 55 60

Gly Met Leu Pro Trp Leu Gln Gly Ile Phe Cys Asn Val Asn Asn Pro
65 70 75 80

Cys Phe Gln Ser Pro Thr Pro Gly Glu Ser Pro Gly Ile Val Ser Asn
85 90 95

Tyr Asn Asn Ser Ile Leu Ala Arg Val Tyr Arg Asp Phe Gln Glu Leu
100 105 110

Leu Met Asn Ala Pro Glu Ser Gln His Leu Gly Arg Ile Trp Thr Glu
115 120 125

Leu His Ile Leu Ser Gln Phe Met Asp Thr Leu Arg Thr His Pro Glu
130 135 140

Arg Ile Ala Gly Arg Gly Ile Arg Ile Arg Asp Ile Leu Lys Asp Glu
145 150 155 160

Glu Thr Leu Thr Leu Phe Leu Ile Lys Asn Ile Gly Leu Ser Asp Ser
165 170 175

Val Val Tyr Leu Leu Ile Asn Ser Gln Val Arg Pro Glu Gln Phe Ala
180 185 190

His Gly Val Pro Asp Leu Ala Leu Lys Asp Ile Ala Cys Ser Glu Ala
195 200 205

Leu Leu Glu Arg Phe Ile Ile Phe Ser Gln Arg Arg Gly Ala Lys Thr
210 215 220

Val Arg Tyr Ala Leu Cys Ser Leu Ser Gln Gly Thr Leu Gln Trp Ile
225 230 235 240

Glu Asp Thr Leu Tyr Ala Asn Val Asp Phe Phe Lys Leu Phe Arg Val
245 250 255

Leu Pro Thr Leu Leu Asp Ser Arg Ser Gln Gly Ile Asn Leu Arg Ser
260 265 270

Trp Gly Gly Ile Leu Ser Asp Met Ser Pro Arg Ile Gln Glu Phe Ile
275 280 285

His Arg Pro Ser Met Gln Asp Leu Leu Trp Val Thr Arg Pro Leu Met

290	295	300
Gln Asn Gly Gly Pro Glu Thr Phe Thr Lys	Leu Met Gly Ile Leu Ser	
305	310	315
Asp Leu Leu Cys Gly Tyr Pro Glu Gly Gly Ser Arg Val Leu Ser		
325	330	335
Phe Asn Trp Tyr Glu Asp Asn Asn Tyr Lys Ala Phe Leu Gly Ile Asp		
340	345	350
Ser Thr Arg Lys Asp Pro Ile Tyr Ser Tyr Asp Arg Arg Thr Thr Ser		
355	360	365
Phe Cys Asn Ala Leu Ile Gln Ser Leu Glu Ser Asn Pro Leu Thr Lys		
370	375	380
Ile Ala Trp Arg Ala Ala Lys Pro Leu Leu Met Gly Lys Ile Leu Tyr		
385	390	395
400		
Thr Pro Asp Ser Pro Ala Ala Arg Arg Ile Leu Lys Asn Ala Asn Ser		
405	410	415
Thr Phe Glu Glu Leu Glu His Val Arg Lys Leu Val Lys Ala Trp Glu		
420	425	430
Glu Val Gly Pro Gln Ile Trp Tyr Phe Phe Asp Asn Ser Thr Gln Met		
435	440	445
Asn Met Ile Arg Asp Thr Leu Gly Asn Pro Thr Val Lys Asp Phe Leu		
450	455	460
Asn Arg Gln Leu Gly Glu Glu Gly Ile Thr Ala Glu Ala Ile Leu Asn		
465	470	475
480		
Phe Leu Tyr Lys Gly Pro Arg Glu Ser Gln Ala Asp Asp Met Ala Asn		
485	490	495
Phe Asp Trp Arg Asp Ile Phe Asn Ile Thr Asp Arg Thr Leu Arg Leu		
500	505	510
Val Asn Gln Tyr Leu Glu Cys Leu Val Leu Asp Lys Phe Glu Ser Tyr		
515	520	525
Asn Asp Glu Thr Gln Leu Thr Gln Arg Ala Leu Ser Leu Leu Glu Glu		
530	535	540
Asn Met Phe Trp Ala Gly Val Val Phe Pro Asp Met Tyr Pro Trp Thr		
545	550	555
560		
Ser Ser Leu Pro Pro His Val Lys Tyr Lys Ile Arg Met Asp Ile Asp		
565	570	575
Val Val Glu Lys Thr Asn Lys Ile Lys Asp Arg Tyr Trp Asp Ser Gly		
580	585	590
Pro Arg Ala Asp Pro Val Glu Asp Phe Arg Tyr Ile Trp Gly Gly Phe		

595

600

605

Ala Tyr Leu Gln Asp Met Val Glu Gln Gly Ile Thr Arg Ser Gln Val
 610 615 620

Gln Ala Glu Ala Pro Val Gly Ile Tyr Leu Gln Gln Met Pro Tyr Pro
 625 630 635 640

Cys Phe Val Asp Asp Ser Phe Met Ile Ile Leu Asn Arg Cys Phe Pro
 645 650 655

Ile Phe Met Val Leu Ala Trp Ile Tyr Ser Val Ser Met Thr Val Lys
 660 665 670

Ser Ile Val Leu Glu Lys Glu Leu Arg Leu Lys Glu Thr Leu Lys Asn
 675 680 685

Gln Gly Val Ser Asn Ala Val Ile Trp Cys Thr Trp Phe Leu Asp Ser
 690 695 700

Phe Ser Ile Met Ser Met Ser Ile Phe Leu Leu Thr Ile Phe Ile Met
 705 710 715 720

His Gly Arg Ile Leu His Tyr Ser Asp Pro Phe Ile Leu Phe Leu Phe
 725 730 735

Leu Leu Ala Phe Ser Thr Ala Thr Ile Met Leu Cys Phe Leu Leu Ser
 740 745 750

Thr Phe Phe Ser Lys Ala Ser Leu Ala Ala Ala Cys Ser Gly Val Ile
 755 760 765

Tyr Phe Thr Leu Tyr Leu Pro His Ile Leu Cys Phe Ala Trp Gln Asp
 770 775 780

Arg Met Thr Ala Glu Leu Lys Lys Ala Val Ser Leu Leu Ser Pro Val
 785 790 795 800

Ala Phe Gly Phe Gly Thr Glu Tyr Leu Val Arg Phe Glu Glu Gln Gly
 805 810 815

Leu Gly Leu Gln Trp Ser Asn Ile Gly Asn Ser Pro Thr Glu Gly Asp
 820 825 830

Glu Phe Ser Phe Leu Leu Ser Met Gln Met Met Leu Leu Asp Ala Ala
 835 840 845

Val Tyr Gly Leu Leu Ala Trp Tyr Leu Asp Gln Val Phe Pro Gly Asp
 850 855 860

Tyr Gly Thr Pro Leu Pro Trp Tyr Phe Leu Leu Gln Glu Ser Tyr Trp
 865 870 875 880

Leu Ser Gly Glu Gly Cys Ser Thr Arg Glu Glu Arg Ala Leu Glu Lys
 885 890 895

Thr Glu Pro Leu Thr Glu Glu Thr Glu Asp Pro Glu His Pro Glu Gly

900 905 910
Ile His Asp Ser Phe Phe Glu Arg Glu His Pro Gly Trp Val Pro Gly
915 920 925
Val Cys Val Lys Asn Leu Val Lys Ile Phe Glu Pro Cys Gly Arg Pro
930 935 940
Ala Val Asp Arg Leu Asn Ile Thr Phe Tyr Glu Asn Gln Ile Thr Ala
945 950 955 960
Phe Leu Gly His Asn Gly Ala Gly Lys Thr Thr Leu Ser Ile Leu
965 970 975
Thr Gly Leu Leu Pro Pro Thr Ser Gly Thr Val Leu Val Gly Gly Arg
980 985 990
Asp Ile Glu Thr Ser Leu Asp Ala Val Arg Gln Ser Leu Gly Met Cys
995 1000 1005
Pro Gln His Asn Ile Leu Phe His His Leu Thr Val Ala Glu His Met
1010 1015 1020
Leu Phe Tyr Ala Gln Leu Lys Gly Lys Ser Gln Glu Ala Gln Leu
1025 1030 1035 1040
Glu Met Glu Ala Met Leu Glu Asp Thr Gly Leu His His Lys Arg Asn
1045 1050 1055
Glu Glu Ala Gln Asp Leu Ser Gly Gly Met Gln Arg Lys Leu Ser Val
1060 1065 1070
Ala Ile Ala Phe Val Gly Asp Ala Lys Val Val Ile Leu Asp Glu Pro
1075 1080 1085
Thr Ser Gly Val Asp Pro Tyr Ser Arg Arg Ser Ile Trp Asp Leu Leu
1090 1095 1100
Leu Lys Tyr Arg Ser Gly Arg Thr Ile Ile Met Ser Thr His His Met
1105 1110 1115 1120
Asp Glu Ala Asp Leu Leu Gly Asp Arg Ile Ala Ile Ile Ala Gln Gly
1125 1130 1135
Arg Leu Tyr Cys Ser Gly Thr Pro Leu Phe Leu Lys Asn Cys Phe Gly
1140 1145 1150
Thr Gly Leu Tyr Leu Thr Leu Val Arg Lys Met Lys Asn Ile Gln Ser
1155 1160 1165
Gln Arg Lys Gly Ser Glu Gly Thr Cys Ser Cys Ser Ser Lys Gly Phe
1170 1175 1180
Ser Thr Thr Cys Pro Ala His Val Asp Asp Leu Thr Pro Glu Gln Val
1185 1190 1195 1200
Leu Asp Gly Asp Val Asn Glu Leu Met Asp Val Val Leu His His Val

1205

1210

1215

Pro Glu Ala Lys Leu Val Glu Cys Ile Gly Gln Glu Leu Ile Phe Leu
 1220 1225 1230

Leu Pro Asn Lys Asn Phe Lys His Arg Ala Tyr Ala Ser Leu Phe Arg
 1235 1240 1245

Glu Leu Glu Glu Thr Leu Ala Asp Leu Gly Leu Ser Ser Phe Gly Ile
 1250 1255 1260

Ser Asp Thr Pro Leu Glu Glu Ile Phe Leu Lys Val Thr Glu Asp Ser
 1265 1270 1275 1280

Asp Ser Gly Pro Leu Phe Ala Gly Gly Ala Gln Gln Lys Arg Glu Asn
 1285 1290 1295

Val Asn Pro Arg His Pro Cys Leu Gly Pro Arg Glu Lys Ala Gly Gln
 1300 1305 1310

Thr Pro Gln Asp Ser Asn Val Cys Ser Pro Gly Ala Pro Ala Ala His
 1315 1320 1325

Pro Glu Gly Gln Pro Pro Pro Glu Pro Glu Cys Pro Gly Pro Gln Leu
 1330 1335 1340

Asn Thr Gly Thr Gln Leu Val Leu Gln His Val Gln Ala Leu Leu Val
 1345 1350 1355 1360

Lys Arg Phe Gln His Thr Ile Arg Ser His Lys Asp Phe Leu Ala Gln
 1365 1370 1375

Ile Val Leu Pro Ala Thr Phe Val Phe Leu Ala Leu Met Leu Ser Ile
 1380 1385 1390

Val Ile Leu Pro Phe Gly Glu Tyr Pro Ala Leu Thr Leu His Pro Trp
 1395 1400 1405

Ile Tyr Gly Gln Gln Tyr Thr Phe Phe Ser Met Asp Glu Pro Gly Ser
 1410 1415 1420

Glu Gln Phe Thr Val Leu Ala Asp Val Leu Leu Asn Lys Pro Gly Phe
 1425 1430 1435 1440

Gly Asn Arg Cys Leu Lys Glu Gly Trp Leu Pro Glu Tyr Pro Cys Gly
 1445 1450 1455

Asn Ser Thr Pro Trp Lys Thr Pro Ser Val Ser Pro Asn Ile Thr Gln
 1460 1465 1470

Leu Phe Gln Lys Gln Lys Trp Thr Gln Val Asn Pro Ser Pro Ser Cys
 1475 1480 1485

Arg Cys Ser Thr Arg Glu Lys Leu Thr Met Leu Pro Glu Cys Pro Glu
 1490 1495 1500

Gly Ala Gly Gly Leu Pro Pro Pro Gln Arg Thr Gln Arg Ser Thr Glu

1505	1510	1515	1520
Ile Leu Gln Asp Leu Thr Asp Arg Asn Ile Ser Asp Phe Leu Val Lys			
1525		1530	1535
Thr Tyr Pro Ala Leu Ile Arg Ser Ser Leu Lys Ser Lys Phe Trp Val			
1540	1545		1550
Asn Glu Gln Arg Tyr Gly Gly Ile Ser Ile Gly Gly Lys Leu Pro Val			
1555	1560	1565	
Val Pro Ile Thr Gly Glu Ala Leu Val Gly Phe Leu Ser Asp Leu Gly			
1570	1575	1580	
Arg Ile Met Asn Val Ser Gly Gly Pro Ile Thr Arg Glu Ala Ser Lys			
1585	1590	1595	1600
Glu Ile Pro Asp Phe Leu Lys His Leu Glu Thr Glu Asp Asn Ile Lys			
1605	1610	1615	
Val Trp Phe Asn Asn Lys Gly Trp His Ala Leu Val Ser Phe Leu Asn			
1620	1625	1630	
Val Ala His Asn Ala Ile Leu Arg Ala Ser Leu Pro Lys Asp Arg Ser			
1635	1640	1645	
Pro Glu Glu Tyr Gly Ile Thr Val Ile Ser Gln Pro Leu Asn Leu Thr			
1650	1655	1660	1680
Lys Glu Gln Leu Ser Glu Ile Thr Val Leu Thr Thr Ser Val Asp Ala			
1665	1670	1675	1680
Val Val Ala Ile Cys Val Ile Phe Ser Met Ser Phe Val Pro Ala Ser			
1685	1690	1695	
Phe Val Leu Tyr Leu Ile Gln Glu Arg Val Asn Lys Ser Lys His Leu			
1700	1705	1710	
Gln Phe Ile Ser Gly Val Ser Pro Thr Thr Tyr Trp Val Thr Asn Phe			
1715	1720	1725	
Leu Trp Asp Ile Met Asn Tyr Ser Val Ser Ala Gly Leu Val Val Gly			
1730	1735	1740	1760
Ile Phe Ile Gly Phe Gln Lys Lys Ala Tyr Thr Ser Pro Glu Asn Leu			
1745	1750	1755	1760
Pro Ala Leu Val Ala Leu Leu Leu Tyr Gly Trp Ala Val Ile Pro			
1765	1770	1775	
Met Met Tyr Pro Ala Ser Phe Leu Phe Asp Val Pro Ser Thr Ala Tyr			
1780	1785	1790	
Val Ala Leu Ser Cys Ala Asn Leu Phe Ile Gly Ile Asn Ser Ser Ala			
1795	1800	1805	
Ile Thr Phe Ile Leu Glu Leu Phe Asp Asn Asn Arg Thr Leu Leu Arg			

1810

1815

1820

Phe Asn Ala Val Leu Arg Lys Leu Leu Ile Val Phe Pro His Phe Cys
1825 1830 1835 1840

Leu Gly Arg Gly Leu Ile Asp Leu Ala Leu Ser Gln Ala Val Thr Asp
1845 1850 1855

Val Tyr Ala Arg Phe Gly Glu Glu His Ser Ala Asn Pro Phe His Trp
1860 1865 1870

Asp Leu Ile Gly Lys Asn Leu Phe Ala Met Val Val Glu Gly Val Val
1875 1880 1885

Tyr Phe Leu Leu Thr Leu Leu Val Gln Arg His Phe Phe Leu Ser Gln
1890 1895 1900

Trp Ile Ala Glu Pro Thr Lys Glu Pro Ile Val Asp Glu Asp Asp Asp
1905 1910 1915 1920

Val Ala Glu Glu Arg Gln Arg Ile Ile Thr Gly Gly Asn Lys Thr Asp
1925 1930 1935

Ile Leu Arg Leu His Glu Leu Thr Lys Ile Tyr Leu Gly Thr Ser Ser
1940 1945 1950

Pro Ala Val Asp Arg Leu Cys Val Gly Val Arg Pro Gly Glu Cys Phe
1955 1960 1965

Gly Leu Leu Gly Val Asn Gly Ala Gly Lys Thr Thr Phe Lys Met
1970 1975 1980

Leu Thr Gly Asp Thr Thr Val Thr Ser Gly Asp Ala Thr Val Ala Gly
1985 1990 1995 2000

Lys Ser Ile Leu Thr Asn Ile Ser Glu Val His Gln Asn Met Gly Tyr
2005 2010 2015

Cys Pro Gln Phe Asp Ala Ile Asp Glu Leu Leu Thr Gly Arg Glu His
2020 2025 2030

Leu Tyr Leu Tyr Ala Arg Leu Arg Gly Val Pro Ala Glu Glu Ile Glu
2035 2040 2045

Lys Val Ala Asn Trp Ser Ile Lys Ser Leu Gly Leu Thr Val Tyr Ala
2050 2055 2060

Asp Cys Leu Ala Gly Thr Tyr Ser Gly Gly Asn Lys Arg Lys Leu Ser
2065 2070 2075 2080

Thr Ala Ile Ala Leu Ile Gly Cys Pro Pro Leu Val Leu Asp Glu
2085 2090 2095

Pro Thr Thr Gly Met Asp Pro Gln Ala Arg Arg Met Leu Trp Asn Val
2100 2105 2110

Ile Val Ser Ile Ile Arg Glu Gly Arg Ala Val Val Leu Thr Ser His

2115

2120

2125

Ser Met Glu Glu Cys Glu Ala Leu Cys Thr Arg Leu Ala Ile Met Val
2130 2135 2140

Lys Gly Ala Phe Arg Cys Met Gly Thr Ile Gln His Leu Lys Ser Lys
2145 2150 2155 2160

Phe Gly Asp Gly Tyr Ile Val Thr Met Lys Ile Lys Ser Pro Lys Asp
2165 2170 2175

Asp Leu Leu Pro Asp Leu Asn Pro Val Glu Gln Phe Phe Gln Gly Asn
2180 2185 2190

Phe Pro Gly Ser Val Gln Arg Glu Arg His Tyr Asn Met Leu Gln Phe
2195 2200 2205

Gln Val Ser Ser Ser Ser Leu Ala Arg Ile Phe Gln Leu Leu Leu Ser
2210 2215 2220

His Lys Asp Ser Leu Leu Ile Glu Glu Tyr Ser Val Thr Gln Thr Thr
2225 2230 2235 2240

Leu Asp Gln Val Phe Val Asn Phe Ala Lys Gln Gln Thr Glu Ser His
2245 2250 2255

Asp Leu Pro Leu His Pro Arg Ala Ala Gly Ala Ser Arg Gln Ala Gln
2260 2265 2270

Asp

<210> 13
<211> 11
<212> PRT
<213> Human immunodeficiency virus type 1

<400> 13
Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg
1 5 10

<210> 14
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: internalizing
domain derived from HIV tat protein

<400> 14
Gly Gly Gly Gly Tyr Gly Arg Lys Lys Arg Arg Gln Arg Arg Arg
1 5 10 15

<210> 15

<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
2476-84

<400> 15
tccatcttga gtggcctctt ccc

23

<210> 16
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
2476-85

<400> 16
cagacccttc agccgccccat ag

22

<210> 17
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
2521-12

<400> 17
atggccttct ggacacagct gatg

24

<210> 18
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
2508-66

<400> 18
cttcaggcggt ctccagagca gg

22

<210> 19
<211> 21
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR primer
2508-63

<400> 19
gtgccctggc tccagggtct c

21

<210> 20
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
2477-29

<400> 20
cacgttagggc aggttagagg

19

<210> 21
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
2520-24

<400> 21
gaaccggcca ttcaccatga tgg

23

<210> 22
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
2533-69

<400> 22
atggcttct gcacacagtt gatgctc

27

<210> 23
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
2507-27

<400> 23
ccaggccaca cacagtacgt agg

23

<210> 24
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR primer
2507-28

<400> 24
acacagtacg tagggcagat agag

24